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PROGRAM REVIEW. MISSOURI-SOURIS-RED RIVER BASIN COMPREHENSIVE PROJECT

Federal Water Pollution Control Administration
Kansas City, Missouri

January 1966

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MISSOURI - SOURIS - RED RIVER BASINS

PROGRAM REVIEW DOCUMENT

COMPREHENSIVE WATER POLLUTION CONTROL PROJECT

January 1966

NATIONAL TECHNICAL
INFORMATION SERVICE

U.S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
Federal Water Pollution Control Administration
Region VI,
Kansas City, Missouri

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PROGRAM REVIEW

Missouri-Souris-Red River Basins Comprehensive Project

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U. S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE

FEDERAL WATER POLLUTION CONTROL ADMINISTRATION

REGION VI

January 1966

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MISSOURI-SOURIS-RED RIVER BASINS
COMPREHENSIVE WATER POLLUTION CONTROL PROJECT

INTRODUCTION

This study plan represents background material required for a program review of the Missouri-Souris-Red River Basins Project. It contains information relative to budget, personnel, administrative and operational procedures likely to be encountered during the duration of the project.

Each individual activity described in this plan is an integral part of the entire project and is necessary to the Program. To assure desirable planning and efficient utilization of the resource of the project, early development of the program evaluation and review technique diagram showing the inter-relationship of each major activity and permitting the development of a critical path of program operation is essential and will be given top priority.

To the extent possible, work in the comprehensive project will be closely coordinated with the Type I Comprehensive Framework Study of the Missouri Basin Inter-Agency Committee, which is being developed using existing data.

The scheduling of work will include the development of water supply and quality control reports required by the other Federal agencies for project authorization within the boundaries of the river basins being studied. Similar reports will be prepared for areas outside the river basins, but within the states of the region, by the regional office staff.

The Federal construction agencies are involved in two types of studies, Type I, or framework study, and a Type II study. The Type I framework study covers major river basins and develops general dimensions

of water resources, water resource problems by periods of time and by broad stretch of river. The Type II study covers subbasins of the major river basins and develops data specific enough to permit site selection in the establishment of scale, of storage projects, or other structural developments. This office will make every effort to provide information to other agencies in the form and context best suited for their activities. Although the comprehensive water pollution control program cannot be put in either Type I or Type II categories.

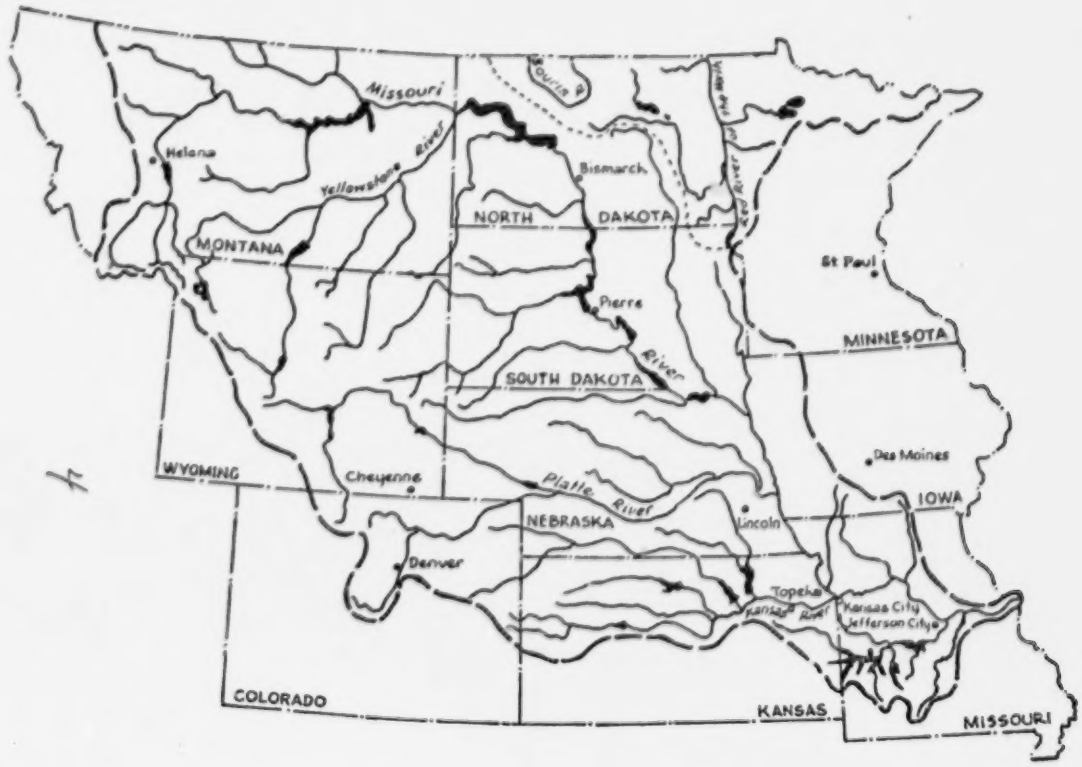
The development of comprehensive programs for water pollution control requires specific investigation, concentrating on sources of pollution, possibilities for treatment at the source, dynamic response of water systems to various types of pollution, and specialized economic projections of water use and waste water discharges. The project's objective is to develop a cooperative water quality control program for the continuing participation of the industries and private citizens as well as municipal, State and Federal agencies.

A distinction in degree or kind of investigation is not recognized in the effort to develop or establish comprehensive water pollution control programs within the meaning of Section 2 (a) of the Federal Water Pollution Control Act. The wording of the Act is as follows:

> "The Secretary shall, after careful investigation in cooperation with other Federal agencies, the State Water Pollution Control agencies, and Inter-State agencies, and with the municipalities and industries involved, prepare or develop comprehensive programs....."

The Act also authorizes the Secretary to make joint investigations with the groups mentioned. Our goal shall be to develop an effective water pollution control program in full concert with all of the

Federal, State, Inter-State, municipal and private interests of the Missouri Basin. Our active participation in Missouri Basin Inter-Agency activities and cooperation with members of the Standing Committee for Comprehensive Planning, Work Groups and Task Forces of the Missouri Basin Inter-Agency Committee and officials of other State agencies not directly represented on the Committee will be most helpful in the development of the program.



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MISSOURI-SOURIS-RED RIVER BASINS

COMPREHENSIVE PROJECT

STUDY AREA

DEPARTMENT OF HEALTH, EDUCATION & WELFARE

FEDERAL WATER POLLUTION CONTROL ADMINISTRATION

REGION VI KANSAS CITY, MISSOURI

FACT SHEET

NAME OF PROJECT: MISSOURI-SOURIS-RED RIVER BASINS COMPREHENSIVE WATER POLLUTION CONTROL PROJECT

PROJECT LOCATION: Headquarters - 601 E. 12th Street
Kansas City, Missouri 64106
Lewis A. Young, Project Director
Charles H. Hajinian, Regional Economist
Telephone: 816 374-3776

PROJECT AUTHORIZED: July 1965 Funded September 1, 1965

PROJECT BUDGET: ($1,000)

	FY 66	FY 67	FY 68	FY 69	FY 70	FY 71	FY 72
Direct (net)*	234	750	800	800	800	620	325
Reimbursable**	23						

PROJECT POSITIONS: (Actual)

	FY 66	FY 67	FY 68	FY 69	FY 70	FY 71	FY 72
Permanent	14	40	59	59	59	45	20
Temporary	4	10	10	10	10		
Reimbursable	3						

*Increase requested in Fiscal Year 1967 (733 to 750) and personnel (33 to 40) to include staffing of Program Office at Bismarck, North Dakota and provide staff for flow study report previously handled by reimbursables.

Increase requested in Fiscal Year 1968 (740 to 800) to provide staff for an additional Program Office at Billings, Montana, for concurrent operation of two Program Offices in Fiscal Years 1968-69 and 70.

**For regional studies outside project area.

ENFORCEMENT ACTION IN THE MISSOURI-SOURIS-RED RIVER BASINS UNDER THE PROVISIONS OF THE FEDERAL WATER POLLUTION CONTROL ACT

Beatrice, Nebraska - Big Blue River (Nebraska-Kansas)
- Conference
  - One session - Beatrice, Nebraska - 5/3/57

Scottsbluff, Nebraska - North Platte River (Nebraska-Wyoming)
- Conference
  - 1st session - Scottsbluff, Nebraska - 9/12/61
  - 2nd session - Cheyenne, Wyoming - 3/21/62
  - 3rd session - Scottsbluff, Nebraska - 11/20/63

Sioux City, Iowa - Missouri River (South Dakota-Nebraska-Iowa)
- Conference
  - One session - Sioux City, Iowa - 7/24/58
- Hearing - Sioux City, Iowa - 3/23-27/59

Omaha, Nebraska - Missouri River (Nebraska-Iowa-Kansas-Missouri)
- Conference
  - 1st session - Omaha, Nebraska - 6/14/57
  - 2nd session - Omaha, Nebraska - 7/21/64
- Program Evaluation - Omaha, Nebraska - 2/11-12/65

St. Joseph, Missouri - Missouri River (Kansas-Missouri)
- Conference
  - One session - St. Joseph, Missouri - 6/11/57
- Hearing - St. Joseph, Missouri - 7/27-30/59
- (Was referred to Department of Justice 8/1/60)

Kansas City, Area - Missouri River (Kansas-Missouri)
- Conference
  - One session - Kansas City, Missouri - 12/3/57
- Hearing - Kansas City, Missouri - 6/13-17/60
- Program Evaluation - Kansas City, Missouri - 4/21/65

St. Louis Metropolitan Area - Missouri & Mississippi Rivers (Missouri-Illinois)
- Conference
  - One session - St. Louis, Missouri - 3/4/58

Fargo, North Dakota - Red River of the North (Minnesota-North Dakota)
- Conference
  - One session - Fargo, North Dakota - 9/14/65

Surveys and Studies

A stream survey ran in mid-July 1964 on the Big Blue River area was made to determine if pollution abatement facilities were adequate.

An inspection of packing plants in Omaha, Nebraska, was made during November 1964.

An intra-state enforcement study is being made on the South Platte River at the request of the Governor of Colorado.

Synopsis of enforcement action, including the remedial action taken, is on page 14 .

Relevant Activities

Federal Water Pollution Control Administration activities in the Missouri Basin are in the following categories: (1) assisting with research in water supply and water pollution control fields, including treatment methods; (2) grants to State agencies for assistance is strengthening water pollution control programs; (3) grants to municipalities to assist in financing the cost of constructing needed sewage treatment works; (4) evaluation of the municipal and industrial water supply needs; (5) evaluation of storage requirements in water resource development projects for water quality control; (6) abatement of interstate pollution; (7) collection of basic water quality data; and (8) providing technical assistance in Environmental Engineering.

The Federal Water Pollution Control Administration programs in the Missouri-Souris-Red River Basins are administered by Regions VI and VIII with Headquarters in Kansas City, Missouri, and Denver, Colorado, respectively.

(1) Research in Water Supply and Pollution Control Fields

At present, most of the research activities in the water supply and pollution control fields are carried out at the Sanitary Engineering Center located in Cincinnati, Ohio. Twelve Field Laboratories are planned or under construction, including one at Columbia, Missouri, which will serve the Missouri Basin area. The basic function of these field laboratories is to provide resources for conducting those activities in research and development,

technical operations and training which require field laboratory services for effective operation. These laboratories will represent technical service arm of the Federal Water Pollution Control Administration in various areas of the nation. Each will be assigned to specific areas of research involving similar skills and equipment, based on problem areas appropriate to regions concerned.

At the Missouri Basin Laboratory, emphasis will be placed on waste treatment, water quality control, reduction of nutrients in treated waste, and control of pollution from agricultural activities. The Laboratory program will supplement the work of the Missouri-Souris-Red River Basins Comprehensive Water Pollution Control Project.

Until the Missouri Basin Laboratory is in operation, such services will be provided by the Sanitary Engineering Center at Cincinnati, Ohio. In Fiscal Year 1966, research is continuing in the exploring of new methods of waste treatment and methods of itemizing and evaluation of effects of chemical pollution.

The Water Pollution Surveillance System of the national network of sampling stations has headquarters in Cincinnati. The Water Pollution Surveillance System laboratory is equipped to make complex examinations to determine minute concentrations of unusual pollutants in samples forwarded from the network surveillance stations. The results of the analysis made in the Cincinnati Laboratory, as well as those made locally at the time a sample collection is taken, are made available to all participants engaged in operation and maintenance in a network on a quarterly basis. Particularly significant results are made available immediately.

A compilation of all data is published annually, five volumes being previously published with a sixth printing covering water years October 1, 1962 to September 30, 1963, in the process of printing. These 62-63 data are being published in sets of 11 volumes with each volume pertaining to a major river basin.

(2) State Program Grants

As authorized by Public Law 660, the Public Health Service grants to the ten Missouri-Souris-Red River Basins States are as follows:

State	Fiscal Year 1964	Fiscal Year 1965	Fiscal Year 1966
Colorado	$ 46,563	$ 45,700	$ 45,300
Iowa	72,644	69,300	67,900
Kansas	56,644	54,200	53,600
Minnesota	85,018	81,000	80,400
Missouri	99,361	94,200	93,600
Montana	25,984	24,900	24,700
Nebraska	40,373	39,600	39,400
North Dakota	27,335	24,800	24,800
South Dakota	28,166	26,500	26,300
Wyoming	18,812	17,900	17,700
Total	$ 500,900	$ 478,100	$ 473,700

Data given in all tables are for entire State.

(3) Construction Grants to States

State	Money Available For Fiscal Year 1965	Money Available For Fiscal Year 1966
Colorado	$ 1,272,400	$ 1,563,970
Iowa	1,633,650	2,087,700
Kansas	1,466,200	1,828,500
Minnesota	1,793,100	2,359,330
Missouri	1,993,800	2,699,900
Montana	1,086,850	1,201,560
Nebraska	1,237,850	1,470,770
North Dakota	1,161,700	1,267,870
South Dakota	1,150,650	1,302,070
Wyoming	925,450	944,630
Total	$13,721,650	$16,726,300

Total grants and total project costs for participating sewage treatment works in each of the 10 Basin States through December 1965 are below:

Region VI

Total Grants and Project Costs for Treatment Works
(December 1956 through December 31, 1965)

State	No. of Projects	Est. Total Project Costs	Total Approved Eligible Costs	Grant Funds
Iowa	138	$ 55,963,443	$ 47,126,907	$ 10,901,581
Kansas	197	43,176,761	33,903,570	9,625,582
Minnesota	143	54,910,371	46,256,842	12,322,510
Missouri	186	167,998,060	142,575,530	14,727,839
Nebraska	221	47,383,501	46,240,328	8,756,871
N. Dakota	143	17,974,739	12,987,688	3,879,172
S. Dakota	105	13,746,774	11,809,545	3,816,966
Total	1,133	$ 401,153,649	$340,900,410	$ 64,030,521

Total Grants and Project Costs for Treatment Works
Under Accelerated Public Works Program
(November 1962 through December 31, 1965)

State	No. of Projects	Est. Total Project Costs	Total Approved Eligible Costs	Grant Funds
		$	$	$
Kansas	3	152,042	125,167	62,582
Minnesota	22	2,483,194	2,405,351	1,179,846
Missouri	26	4,121,127	3,617,236	1,802,106
Total	51	$ 6,756,363	$ 6,147,754	$ 3,044,534

Treatment Works Combined Under WPC and APW Acts

State	No. of Projects	Est. Total Project Costs	Total Approved Eligible Costs	Grant Funds APW	Grant Funds WPC
Nebraska	8	$ 392,679*	392,679*	$88,803	$106,845

*Included in total WPC Grants

Region VIII

Total Grants and Project Costs for Treatment Works
(December 1956 through December 31, 1965)

State	No. of Projects	Est. Total Project Costs	Total Approved Eligible Costs	Grant Funds
Colorado	103	$ 47,249,318	$ 42,440,219	$ 8,926,899
Montana	87	15,513,417	13,124,299	3,695,827
Wyoming	49	7,471,285	6,571,557	1,816,202
Total	239	$ 70,234,020	$ 62,136,075	$14,438,928

Federal Water Pollution Control Administration grant projects were approved during Fiscal Year 1966 for the following municipalities:

Iowa

Clinton	Olin	
Elliott	Stratford	
Madrid		

Kansas

Agra	Denison	Mayfield	St. Francis
Andover	Easton	Mission Tsp(199)	St. John
Columbus	Glen Elder	Morrowville	
Coolidge	Greeley	Robinson	
	Humboldt	Rush Center	
	Iuka	Scranton	
	Jennings	Shawnee Mission Tsp(I)	
	Kanopolis	Shawnee Mission Tsp(T)	

Minnesota

Bertha	Hector	Maple Plain	Orr
Fairmont	Holdingford	Moorhead	Richmond
Forest Lake	Mable	New Prague	Swanville
Grand Rapids	Madelia	Northfield	Wanamingo

Missouri

Gladstone	King City	Norborne	Seneca
Hayti	Kingsville	Orrick	Scott City
Jefferson City(282)	Madison	Republic	St. Joseph(150)
Kansas City(142)	Newburg	Sedalia(270)	Urich

Nebraska

Auburn	Chambers	Hadar	Newman Grove	Silver Creek
Avoca	Dannebrog	Humboldt	Oakland	Spencer
Bee	Dunbar	Laurel	Papillion	Sutton
Bloomfield	Gering	Lyon	Ponca	Wilsonville
Boelus	Gretna	Malmo	Roca	Winside
Burwell	Grand Island	Mullen	Scribner	Valley

North Dakota

Bismarck	Grandin	Mapleton	Surrey
Beulah	Kensal	Medina	
Buxton	Mayville	Northwood	

South Dakota

Aberdeen	Clear Lake	Oldham
Alexandria	McCook	Peever
Brookings	Mission	

Colorado

Denver Metropolital Sewage Disposal District #1(COLO-112)
Eagle Sanitation District (COLO-120)
Sterling
East Canon Sanitation District(122)
Platteville
Craig
Buena Vista Sanitation District(129)
Rifle
Bear Creek Water and Sanitation District(127)

Montana

Big Sandy	Missoula
Cascade	Richland
Fairview	West Yellowstone

Wyoming

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(4) Municipal and Industrial Water Supply

Under the Federal Water Supply Act (Title III, Public Law 85-500) as amended by Public Law 87-88 provides authority for the Corps of Engineers and the Bureau of Reclamation to include storage for immediate and future water supply within Federal navigation, flood control, irrigation, or multiple purpose projects on a basis which will permit the Federal Government and local interests to share equally in the benefits of multiple purpose construction. This law also authorizes storage in Federal impoundments to regulate streamflow for the purpose of water quality control. The Public Health Service works closely with the Corps of Engineers and the Bureau of Reclamation in determining the need for and value of such storage.

(5) Quality Control

The following studies of needs and value of storage for municipal and industrial water supply and water quality control have been made in the Basin Area:

Stream or Area	State(s)	Requested By*
Little Blue Unit (Angus Reservoir)	Nebraska	BR
Cedar Rapids Division	Nebraska	BR
Chariton & Little Chariton	Iowa-Missouri	CE
Fishing River	Missouri	CE
Grand River	Missouri	CE
Green River	North Dakota	CE
James River	N.D.-S.D.	CE
Republican River (Milford Reservoir)	Kansas	CE
Marmaton River	Kansas-Missouri	CE
Meramec River	Missouri	CE
Nemaha River Basin	Nebr.-Ks.	CE
Nelson-Buck Unit (Herndon Reservoir)	Nebr.-Ks.	BR
Delaware River (Perry Reservoir)	Kansas	CE
White River (Pine Ridge Unit)	Nebr.-S.D.	CE
Smoky Hill River (Round Mound Reservoir)	Kansas	BR
Lyon Creek (Woodbine Reservoir)	Kansas	CE
Big & Little Blue Rivers	Nebr.-Ks	CE

Stream or Area (Cont'd)	State(s)	Requested By*
Blue (Kansas City)	Missouri	CE
Little Blue (Kansas City)	Missouri	CE
Osage River	Kansas-Missouri	CE
Red River of the North	N.D.-Minnesota	CE
Elkhorn River	Nebraska	BR
Wears Creek	Missouri	CE

*CE - Corps of Engineers
BR - Bureau of Reclamation

(6) Enforcement Actions

Construction of primary waste treatment facilities in the eight enforcement areas of the Missouri River Basin is proceeding. In one of these areas (the interstate reach of the Big Blue River, Kansas-Nebraska) waste treatment facilities have been completed for Nebraska sources of pollution in accordance with the recommendations of the State Sanitary Engineer. A cooperative survey by the States of Nebraska and Kansas and the Public Health Service to determine the quality of water in this reach of the Big Blue River was made during 1964. The report is pending.

At the Third Session of the Conference in the matter of pollution of the interstate waters of the North Platte River, Wyoming-Nebraska, it was concluded that the rivers fisheries resources would be developed but that the States of Wyoming and Nebraska will have to decide whether water quality in the river should be improved to permit this development.

A minimum of primary treatment has been required for all sources of wastes in the Sioux City, Iowa, enforcement area. All wastes generated in this area are now receiving primary treatment with the exception of Vermillion, South Dakota. A contract has been let for the construction of a secondary waste treatment plant to serve

Vermillion. The effluent will be discharged to the Vermillion River.

With the exception of Omaha, Nebraska, all wastes in the Omaha enforcement area are now receiving primary treatment. The Missouri River Sewage Treatment Plant in Omaha, Nebraska, placed in limited operation in August 1964, was designed and constructed to provide primary treatment for all industrial and domestic wastes discharged to the Omaha sewage collection system. However, the strength of industrial wastes was to have been materially reduced in accordance with the then existing Omaha City Code. Early in 1964, the State Sanitary Engineer discovered that the in-plant industrial waste reduction program was not proceeding according to the City Code and further, that the City Government of Omaha, Nebraska, had relieved the packing industry of the responsibility of providing in-plant waste reduction. In effect, the City agreed to construct an auxiliary treatment facility to receive wastes from the sewers carrying the packing industry waste and to reduce the strength of these wastes to a point compatible with design figures used by the consulting engineering firm in designing the Missouri River Sewage Treatment Plant.

The confusion and uncertainty arising from this change in planning resulted in the calling of a Second Session of the Conference in July 1964. The Conferees of the States of Iowa, Kansas, Missouri, and Nebraska and the Public Health Service unanimously, but reluctantly, agreed to accept Omaha's new plan whereby the City would finance and build another plant designed to treat packing house wastes, particularly paunch manure and grease not removed by the industries themselves. The proposed treatment facility is to be completed and in operation by December 1, 1966.

The construction of primary waste treatment facilities by the City of St. Joseph, Missouri is completed and the plant is in operation. Major intercepting sewers and other appurtenances are either completed, in the process of being constructed, or in final stages of planning. The majority of the industrial wastes generated by the industries of St. Joseph, Missouri, are located on the Missouri River immediately downstream from the City. These industries, composed primarily of packing industries, formed an industrial district for the purpose of financing and constructing a primary waste treatment facility. This industrial waste treatment plant is now in operation.

Waste treatment facilities in the Kansas Citys enforcement area are in various stages of planning, construction, and operation. Primary facilities for the City of North Kansas City, Missouri, have been completed and placed in operation. A progress evaluation was held in Kansas City, Missouri, April 21, 1965. Representatives of the State water pollution agencies and the Public Health Service reaffirmed the previously agreed-upon completion date of early 1967.

The Metropolitan St. Louis Sewer District has completed and placed in operation a secondary waste treatment plant which receives all wastes in the District area which discharge to the Missouri River.

STATUS OF REMEDIAL WORKS BY ENFORCEMENT ACTION

Omaha, Nebraska — Conference Area

January 1, 1966 — Date

Number of Municipalities: 14, 5 districts & 2 institutions
River Miles Affected: 176 (River Mile 648-522)

Conference: 6/14/57 & 7/21/64
Hearing: None

Municipality, Sewer District Other	River Miles	Treatment Adequate	Date of Completion	Remarks
Blair, Nebr.	648	yes	4/59	-
Ft. Calhoun, Nebr.	634-3E	yes	9/60	Interceptors, treatment plant, etc.
Carter Lake, Ia.	617	yes	1963	Connection to Omaha, S. Interceptor.
Council Bluffs, Ia.	616	yes	4/63	Completed.
Omaha, Nebr.	615	no		
Omaha STP			1964	South Inlet not functioning[2/]. North complex in partial operation only, due to difficulties in interceptor lift stations.
Papillion Cr. Plt.		yes	7/60	
N. Omaha Interceptor			12/61	Completed.
S. Omaha Interceptor & Lift stations			1964	Compl. but not used to full capacity. Lift sta. problems cause much by-passing to R.
Hascall St. Interceptor			12/61	
Monroe St. Interceptor			1964	Completed.
District #31[1/]		yes	1/60	Lift station, outfall & Treatment Plt.
District #31[1/]		yes	1964	Addn'l fac. completed.

1/ Not financed by City of Omaha, but located in vicinity of Omaha.
2/ South inlet complex will not be in operation until packing house wastes are removed from the stream. Completion date estimated to be in 1967. This unit was not designed to handle packing house wastes unless pre-treatment was provided by the packers. This was not done.

STATUS OF REMEDIAL WORKS BY ENFORCEMENT ACTION

Omaha, Nebraska — Conference Area

January 1, 1966 — Date

Number of Municipalities: 14, 5 districts & 2 institutions
River Miles Affected: 176 (River Miles 648-522)

Conference: 6/14/57 & 7/21/64
Hearing: None

Municipality, Sewer District, Other	River Miles	Treatment Adequate	Date of Completion	Remarks
E. Sarpy Co.[1]		yes	8/60	Interceptors, treatment plant, etc.
Millard, Nebr.[1]		yes	1963	Plant Updated
Ralston, Nebr.[1]		yes	6/61	To Hascall St. Interceptor. Lift Station & force main.
Sarpy Co., Dist. #4[1]		yes	1963	
Council Bluffs, Ia.				
School For Deaf	606-9	No-none		To build own, or go to Council Bluffs
Bellevue, Nebr.	601	yes	6/61	
Omaha, Nebr. Dist. #20	597-14-6	yes	Prior to Conference	
Omaha, Nebr. Western Part	597-14-1	yes	Prior to Conference	Abandoned - to Papillion Cr. STP via Hascall St. Int.
Papillion, Nebr.	597-10-5	No-none		Secondary treatment plant designed. Grant offer made.[3]
Plattsmouth, Nebr.	591	yes	5/61	
Glenwood, Ia.	588-11	yes		Secondary plant completed.
State Hospital	588-11	yes		
Murray, Nebr.	585-4	yes	1955	

1/ Ibid.

3/ Construction pending final report on Corps of Engineers flood control plans.

STATUS OF REMEDIAL WORKS BY ENFORCEMENT ACTION

Omaha, Nebraska — Conference Area

January 1, 1966 — Date

Number of Municipalities: 14, 5 districts & 2 institutions
River Miles Affected: 176 (River Miles 648-522)

Conference: 6/14/57 & 7/21/64
Hearing: None

Municipality, Sewer District, Other	River Miles	Treatment Adequate	Date of Completion	Remarks
Nebraska City, Nebr.	562	yes		Completed, in operation
Peru, Nebr.	542	no	1936	Plant needs remodeling

STATUS OF REMEDIAL WORKS BY ENFORCEMENT ACTION

Kansas Citys Conference Area

January 1, 1966 Date

Number of Municipalities: 30, 3 subdivisions, 3 institutions & 1 sewer district
River Miles Affected: 736

Conference: 12/3/57
Hearing: 6/13-17/60

Municipality, Sewer District, Other	River Miles	Treatment Adequate	Date of Completion	Remarks
Parkville, Mo.	377E	No-none		Engr. report submitted to state
Riverside, Mo.	371E	no-none		Negotiated with K.C., Mo. for treatment. Under construction.
Kansas City, Kans.	380 & 368-3	no-none		
Turkey Cr. Interceptor	Sewer		1964	Completed.
Central Ind. Dist. Interceptor			1964	Completed.
Central Ind. Dist. Pump Sta.			1964	Completed.
Central Ind. Dist. Force Main			1964	Completed.
Armourdale Interceptor Sewer				Completed.
Armourdale Pump Sta.				Completed.
Armourdale Force Main				Under Contract.
Fairfax Pump Sta. & Force Main				Pump Sta. under construction & Force Main under contract.
Fairfax Int. & river crossing				Under contract.
Treatment Plt. Outfall			1964	Completed.
Treatment Plant				Plans and Specs. being reviewed.
Wyandotte Township S/D #20	368-12	yes	1962	
Shawnee Twp. S/D #8	368-9	yes	8/61	
Wyandotte Twp. S/D #7	368-8	yes	1964	
Twp. S/D #1, Shawnee & Mission				Secondary STP
Shawnee Twp. Interceptor S/D #10 & STP				
N.K.C., Mo.	365	yes	8/64	Completed.

STATUS OF REMEDIAL WORKS BY ENFORCEMENT ACTION

Kansas Citys Conference Area

January 1, 1966 Date

Number of Municipalities 30, 3 subdivisions, 3 institutions, &
River Miles Affected: 736 1 sewer district

Conference: 12/3/57
Hearing: 6/13-17/60

Municipality Sewer District, Other	River Miles	Treatment Adequate	Date of Completion	Remarks
K.C., Mo.[3/]	368-3 & 365	no-none		
K.C. Mill Cr. Interceptor & Pump Station			1964	Completed.
K.C. Rt. 71 So. Interceptor & Pump Station			1964	Completed.
West Side Sludge Force Main				Completed.
K.C. Sludge Proc. Facilities			8-3-66E	Under construction.
K.C. Red Bridge Interceptor & Pump Station			1963	Completed.
Turkey Cr. Lift Sta. & Force Main			1964	Completed.
Little Blue R., Interceptor, Pump Sta. & Lagoon			1963	Completed.
K.C. Round Grove Cr. Interceptor, Pump Sta. & Force Main			5/64	Complete.
Shoal Cr. Interceptor, Sewer & Treatment Facility				Complete.
Lane Road Interceptor			1964	Completed.
Sercy Cr. Interceptor			5/64	In service.
Martin City Extension				Completed.
Big Blue R. Pump Station			11/64	Completed.
Santa Fe Interceptor			5/64	Completed.
Santa Fe Pump Sta.			12/64	Completed.

3/ Not a complete list of construction projects.

STATUS OF REMEDIAL WORKS BY ENFORCEMENT ACTION

Kansas Citys — Conference Area

January 1, 1966 — Date

Number of Municipalities: 30, 3 subdivisions, 3 institutions, & 1 sewer district
River Miles Affected: 736

Conference: 12/3/57
Hearing: 6/13-17/60

Municipality, Sewer District, Other	River Miles	Treatment Adequate	Date of Completion	Remarks
Line Cr. Sewers				Completed.
West Side Plt.			1964	Complete but not in operation.4/
Blue River Plt.			May 1966E	88% complete.
Central Ind. Dist. Interceptor				Completed.
N.E. Ind. District Interceptor & Pump Station			Dec. 1966E	Under construction.
Raytown, Mo.	337-12-4E	yes	1962	Completed.
Sugar Creek, Mo.	355-2	yes	1962	Completed.
Independence, Mo., West Side	355-2	yes	1962	Completed.
(PLEASE NOTE that Sugar Creek, Mo. and Indep., (West Side), Mo. are combined in one treatment plant.)				
Claycomo, Mo.	349-12E	yes	1963	Completed.
Liberty, Mo.	352-4	yes		Completed.
Independence, Mo. East Side	337-18-7	yes	prior to 12/3/57	Chapel Park area added to system.
Lexington, Mo.	317	yes	1964	Completed.
Lees' Summit, Mo.	337-39-3	yes	1962	
Waverly, Mo.	293	yes	1964	Completed.
Brunswick, Mo.	250-5	yes	1962	

4/ Sludge will be pumped to sludge facilities at the Blue River plt. - operation will begin upon completion and operation of the Blue River Sludge Removal Facilities.

STATUS OF REMEDIAL WORKS BY ENFORCEMENT ACTION

Kansas Citys Conference Area

January 1, 1966 Date

Number of Municipalities 30, 3 subdivisions, 3 institutions, &
River Miles Affected: 736 1 sewer district

Conference: 12/3/57
Hearing: 6/13-17/60

Municipality, Sewer District, Other	River Miles	Treatment Adequate	Date of Completion	Remarks
Glasgow, Mo.	226	no-none		Employed Engineer.
Columbia, Mo.	170-11-5	yes	1963	Completed.
Boonville, Mo.	197	Yes		Completed.
State Boys Home	196	Yes		Discharges to city sewer.
Jefferson City, Mo.	144	no-none		Some sewer constr. work under way, Treatment plant not yet designed.
City Aux. Prison	144E	no		Prison is included in Jefferson City.
Algoa Reformatory	136-8	yes	1962	
Chamois, Mo.	118	yes	1/62	
Hermann, Mo.	98	yes	1963	Completed.
New Haven, Mo.	82	no-none		Preparing detailed plans.
Washington, Mo.	68	no-none	11/67E	Preliminary report submitted; Still no bond election.
Ellisville, Mo.	38-10	yes	1961	Completed.
St. Charles, Mo.	28			Completed.
St. Louis, Mo.				
Mo. R. Watershed				
Coldwater Cr. (STP)	7		8/65	Completed.
Coldwater Cr. Interceptor	7		1964	Completed.

STATUS OF REMEDIAL WORKS BY ENFORCEMENT ACTION

Scottsbluff, Nebraska Conference Area

January 1, 1966 Date

Number of municipalities: 13
River miles affected: 86

Conference: 9/12/61
Hearing: 3/21/62 &11/20/63

Municipality, Sewer District, Other	River Miles	Treatment Adequate	Date of Completion	Remarks
Torrington, Wyo.	209	yes	Prior to Conference	
Henry, Nebr.	199	yes	1962	
Lyman, Nebr.	194-4	No-none		No action
Morrill, Nebr.	191	yes	1963	
Mitchell, Nebr.	184	yes	1963	
Scottsbluff, Nebr.	173	yes	12/62	
Terrytown	174	No-none		No action
Gering, Nebr.	173	No-none		Grant Application. Will build own plant.
Minatare, Nebr.	166	No-none		No action
Melbeta, Nebr.	166	yes	Prior to Conference	
Bayard, Nebr.	155	No-none		No action
Bridgeport, Nebr.	142	yes	1964	Completed
Broadwater, Nebr.	127	yes	1965	

STATUS OF REMEDIAL WORKS BY ENFORCEMENT ACTION

St. Joseph, Missouri — Conference Area

January 1, 1966 — Date

River Mile: 522 to 388
Number of Municipalities: 8 & 4 institutions
River Miles Affected: 182

Conference: 6/11/57
Hearing: 7/27-30/59

Municipality Sewer District, Other	River Miles	Treatment Adequate	Date of Completion	Remarks
Rockport, Mo.	522-9	yes	1962	
Tarkio, Mo.	508-21	yes	1962	
St. Joseph, Mo.[1/]	488	No-none		$3,000,000 bonds sold 1/15/63 for sewage treatment plant.
R1 Sewage Treatment Plant			11/65	Item 1 In operation.
R2 Whitehead Pump Sta. and Force Main				Items 2 & 3 Under contract.
Brown's Br. Pump Sta. & Force Main				Under contract.
R3 Interceptor				Item 4 Part of project has been designed.
Sewer				Part is incl. in Whitewood Project.

1/ See letter from City of St. Joseph under date 11/29/61

STATUS OF REMEDIAL WORKS BY ENFORCEMENT ACTION

St. Joseph, Missouri Conference Area

January 1, 1966 Date

River Mile: 522 to 388
Number of Municipalities: 8 & 4 institutions
River Miles Affected: 182

Conference: 6/11/57
Hearing: 7/27-30/59

Municipality, Sewer District, Other	River Miles	Treatment Adequate	Date of Completion	Remarks
R4				
Roy's Br. Sewer & Lagoon				Item 5 and Airport lift Sta. & Lagoon. Being designed.
Airport Pump Sta. & Lagoon				Being designed.
G1				
Pickett-Mitchell Ave. Sewer				Item 20. Completed.
SW Parkway-29 Jackson Sewer			1962	Item 22. Completed.
28th & Comm. Storm Sewer			1962	Item 23. Completed.
G2				
Brookdale to Gene Field Road Sewer			1963	Item 14. Completed.
Brookdale to Belt Hwy. Sewer			1962	Item 15. Completed.
G3				
Gene Field Road Sewer & Lagoon			1963	Item 7. Completed.
G4				
Sherman St. Sewer			6/63	Item 26. Completed.

STATUS OF REMEDIAL WORKS BY ENFORCEMENT ACTION

St. Joseph, Missouri Conference Area

January 1, 1966 Date

Conference: 6/11/57
Hearing: 7/27-30/59

River Mile: 522 to 388
Number of Municipalities: 8 & 4 institutions
River Miles Affected: 182

Municipality, Sewer District, Other	River Miles	Treatment Adequate	Date of Completion	Remarks
Elizabeth St. Sewer			6/63	Item 27. Completed.
Sewer Ext., 9th & Harmon			6/63	Item 28. Completed.
G5				
Ext. Oak Hill Sewer				Item 16. Completed.
Black Snake Channel Imprvt.				Item 13. Completed.
G6				
Black Snake Sewer Extension				Item 10. Completed.
Green Valley Sewer				Item 11. Completed.
Karnes Rd. Sewer				Item 12. Completed.
G7				
Whitehead San. Sewer Ext.				Item 21. Completed.
Whitehead Channel Imprvt.				Item 24. Completed.
G8				
Replace Sewer in 6th St.				Item 18.

STATUS OF REMEDIAL WORKS BY ENFORCEMENT ACTION

St. Joseph, Missouri — Conference Area

January 1, 1966 — Date

River Mile: 522 to 388
Number of Municipalities: 8 & 4 institutions
River Miles Affected: 182

Conference: 6/11/57
Hearing: 7/27-30/59

Municipality Sewer District, Other	River Miles	Treatment Adequate	Date of Completion	Remarks
San. Sewer Ext. Fr. King Hill Viaduct to Hwy. 71				Item 19.
G9 Faron St. Lagoon and Sewer Messanie St. Sewer & Lagoon	COMBINED INTO ONE PROJECT			Designed. Awaiting acquisition of land.
G10 Lake Ave. Storm Sewer				Item 25.
Whitehead Channel Imprvt. 2nd St. to 6th St.				Item 17.
Wathena, Kansas	443-1E	yes	prior to Conf.	
Atchison, Kansas	423	yes	8/62	
Weston, Mo.	419E	Yes	9/62	
Leavenworth, Kansas	397	yes	5/62	Includes facilities for Fed. Pen, VA Hosp. & Ft. Leavenworth
Platte City, Mo.	391-16	yes	1962	
Lansing, Kansas St. Prison	388-1E	yes	prior to Conf.	

STATUS OF REMEDIAL WORKS BY ENFORCEMENT ACTION

Sioux City, Iowa — Conference Area

January 1, 1966 — Date

Number of Municipalities 12 & 1 air base
River Miles Affected: 249 (River Mile 880-648)- incl.
all cities within 5 miles of Mo. River except in Sioux City, Ia. area

Conference: 7/24/58
Hearing: 3/23-27/59

Municipality Sewer District, Other	River Miles	Treatment Adequate	Date of Completion	Remarks
Pickstown, S. D.	879	yes	1958	
Niobrara, Nebr.	843	yes	1962	
Springfield, S. D.	833	yes	1957	
Yankton, S. D.	306	yes	5/64	Completed & in operation
Vermillion S. D.	772-5	no-none		Contract has been let.
Elk Point, S. D.	758	yes	6/2/59	Planning began prior to conference.
Ponca, Nebr.	745-8	no-none		Grant withdrawn.
Sioux City, Iowa	732	yes		
Section I				Interceptor from Floyd R. to treatment plant. Completed.
Section II				Interceptor from Perry Cr. Lift Sta. to Floyd R. (not a Federal grant project). Completed.
Section III, Phase I				Interceptor from Helmer St. to Perry Cr. lift station (not a Federal grant project). Completed.
Section III, Phase 2				Interceptor from Riverside Blvd. to Helmer Street. Completed.
Section IV				Interceptor in Floyd R. bed. Gordon Dr. to Floyd R. lift station. Completed.
Section V, Part 1				Interceptor from Leeds Lift Sta. to Gordon Dr. completed.4/

4/ Part 1 begins at end of Section IV & extends to Morgan & Darling Streets.(contract $321,282.) Also contracts for Wall St. & 7th St. Siphons under new Floyd R. Channel in amt. of $617,834 awarded by Corps of Engineers.

STATUS OF REMEDIAL WORKS BY ENFORCEMENT ACTION

Sioux City, Iowa Conference Area

January 1, 1966 Date

Number of Municipalities 12 & 1 air base
River Miles Affected: 249 (river miles 880-648 incl.
all cities within 5 miles of Mo. River except in Sioux City, Iowa area

Conference: 7/24/58
Hearing: 3/23-27/59

Municipality, Sewer District, Other	River Miles	Treatment Adequate	Date of Completion	Remarks
Section V, Part 2				Interceptor & lift station above Gordon Dr. completed.
Section V, Part 2b				Completed.
Section V, Part 2c				Completed.
Section VI				Outfall from STP to Mo. River completed.
Section VII				Lift Stations: Perry Cr, Floyd River & 28th St. completed.
Sewage Treatment Plt.				Compl. & in operation 4/1/64
Sioux City AFB, Iowa	723-4	No		Waste stabilization ponds.
Sergeant Bluff, Iowa	723-4	No		Discharges to Sioux City AFB WSP.
S. Sioux City, Nebr.	730	Yes		Interceptor, pipeline compl. Lift Sta. & pipeline to Sioux City, Iowa.
Dakota City, Nebr.	726	No-none		No progress.
Decatur, Nebr.	691	yes	1938	

(7) Water Quality

The Water Pollution Surveillance System was established by the Public Health Service in 1957 for the purpose of obtaining data on the radiological, biological, chemical and physical qualities of the major surface waters.

There are presently 130 Water Pollution Surveillance System sampling stations located throughout the United States, with 18 of these stations located in the Missouri-Souris-Red and Rainy River Basins area as follows:

River	Station
Rainy River	At Baudette, Minnesota
Rainy River	At International Falls, Minnesota
Red River (North)	At Grand Forks, North Dakota
Big Horn River	At Hardin, Montana
Big Sioux River	Below Sioux Falls, South Dakota
Kansas River	At DeSoto, Kansas
Missouri River	At St. Louis, Missouri
Missouri River	At Missouri City, Missouri
Missouri River	At Kansas City, Kansas
Missouri River	At St. Joseph, Missouri
Missouri River	At Omaha, Nebraska
Missouri River	At Yankton, South Dakota
Missouri River	At Bismarck, North Dakota
Missouri River	At Williston, North Dakota
North Platte River	Above Henry, Nebraska
Platte River	Above Plattsmouth, Nebraska
South Platte River	At Julesburg, Colorado
Yellowstone River	Near Sidney, Montana

Since 1957 and through 1962, the expansion of the Water Pollution Surveillance System was at an average rate of 30-40 new stations each year. It is expected that the System will be expanded as funds become available for adding more stations. There is an urgent need to expand the System as comprehensive water quality projects are developed.

During Fiscal Year 1964, the Public Health Service distributed printed copies of its "Municipal Water Facilities Inventory - 1962."

Field data for up-dating the "Municipal Water Facilities Inventory in Communities of 25,000 Population and Over" have been assembled and this revised inventory will soon be ready for distribution.

(8) Technical Assistance in Environmental Engineering

Technical assistance to State and Federal agencies on problems of water quality is authorized by the Federal Water Pollution Control Act. Continuing studies are in progress in such fields as quality control of potable water supplies, reevaluation of drinking water standards, the effects of impoundments on downstream water quality, and conservation and improvement of water quality. Problems of toxicity from insecticides, herbicides and other chemicals reaching water supplies through sewage or industrial waste and surface wash are also problems being investigated by the Public Health Service.

PERSONNEL SUMMARIES OF POSITIONS AUTHORIZED AND FILLED AS OF JANUARY 1, 1966

Unit and Position Title		Grade or Rank	Series	Position Number	Incumbent
Director	S. San. Engr.	GS-15	819	EH-65-418	Young
Deputy Director	S. San. Engr.	GS-14	819	EH-65-415	
Secretary		GS-5	318	330	Collier
Economist		GS-13	110	EH-63-226	Hajinian
Chief Technical Operation Section		GS-14	819	EH-65-	
Chemical Engineer		GS-13	893	BSS 4771	
Hydrologist	(HSO)	GS-12	1315	7318	Draper
Admin. Officer		GS-11	341	EH-63-64	Dolginoff
Sanitary Engr.		GS-11	819	EH-65-413	
Economist		GS-9	110	EH-65-412	
Biologist		GS-9	401	EH-65-414	Powers
Data System Analyst		GS-9	334		
Statistical Clerk		GS-5	1531	448	Kennedy
Steno		GS-4	331	331	Amos
*Steno		GS-4	331	331	Mikes
*Sanitary Engr.		GS-12	819	EH-65-672	Holtrop
*Hydraulic Engr.		GS-11	1315	EH-65-671	

*Reimbursable Positions

All Duty Stations in Kansas City, Missouri

LONG RANGE GOALS:

The long range goals of the Missouri-Souris-Red River Basins Comprehensive Program are:

1. The development of long range goals designed to provide a supply of clean water available for all legitimate uses to the present and future population of given geographic areas. The development of the goals to be accomplished by consultation and cooperation with officials and leaders in the project area and by economic studies and projections to determine the probable and desirable uses of specific portions of streams and other waters during a fifty year period covered by the study. The program must be a cooperative effort of local, State, and Federal agencies.

2. To seek out those areas where water pollution now or may, during the fifty year study period, interfere with project beneficial uses.

3. To determine and evaluate alternate means to reduce the effects of pollution below the threshold of interference with reasonable use.

4. To stimulate local, State, and Federal initiative to implement water pollution control through suitable legislation, adequate financing, and active regulatory control.

5. To keep the developed water pollution control plan current by readily retrievable data, by constant up-dating and by continuous surveillance.

The plan of attack to achieve the above listed goals is:

1. A reconnaissance of the stream systems will be used to determine all areas which are presently exposed to excessive organic, inorganic, or toxic wastes, and pinpoint areas requiring intensive study.

2. Through economic base studies and projections and engineering reconnaissance determine the location and magnitude of probable critical pollution loads to be expected during the fifty year study period.

3. In cooperation with the Standing Committee for Comprehensive Planning of the Missouri Basin Inter-Agency Committee, Federal, State, and local agencies and other interested groups in the study area determine the probable effect of present and future man-made structures, such as storage, drainage, diversion, channeling, etc., on the water resources.

4. Install the STORET System of Water Quality Data Storage and Retrieval to facilitate the use and analysis of available data and data which will be obtained during the study.

5. Determine the assimilating capacity of critical reaches of streams and any other bodies of water during critical periods of time, analyzing conditions of low flow and high temperature periods for organic loadings and high flow and low temperature conditions for maximum bacteriological effects.

6. Project previously determined stream and pollution

load characteristics to anticipate a condition of maximum loading and minimum assimilating capacity.

7. For selected critical areas, determine alternatives including cost, benefits and liabilities by which water of adequate quality to permit desired uses can be assured, working cooperatively with the Missouri Basin Inter-Agency Committee for Comprehensive Planning in the evaluation of such alternatives.

8. Develop a continuing program in cooperation with local, State, and Federal agencies and industrial interests to assure that the developed program is kept current with changing conditions, responsive to changing needs, and alert to abate the degrading of water quality.

9. Prepare a report summarizing actions taken, data accumulated, conclusions reached and recommendations.

In the development of the program, all beneficial water uses will be considered with particular emphasis in regard to conflicts for a limited resource.

To implement the plan of attack, one of the first orders of business will be the development of a PERT diagram for scheduling of all activities.

Early installation of the STORET System is planned which will require the development of river mileage code and the assembling of all available data. This method of storage and retrieval of water quality data has been discussed with some of the States of the area who have expressed an interest and have indicated they would be

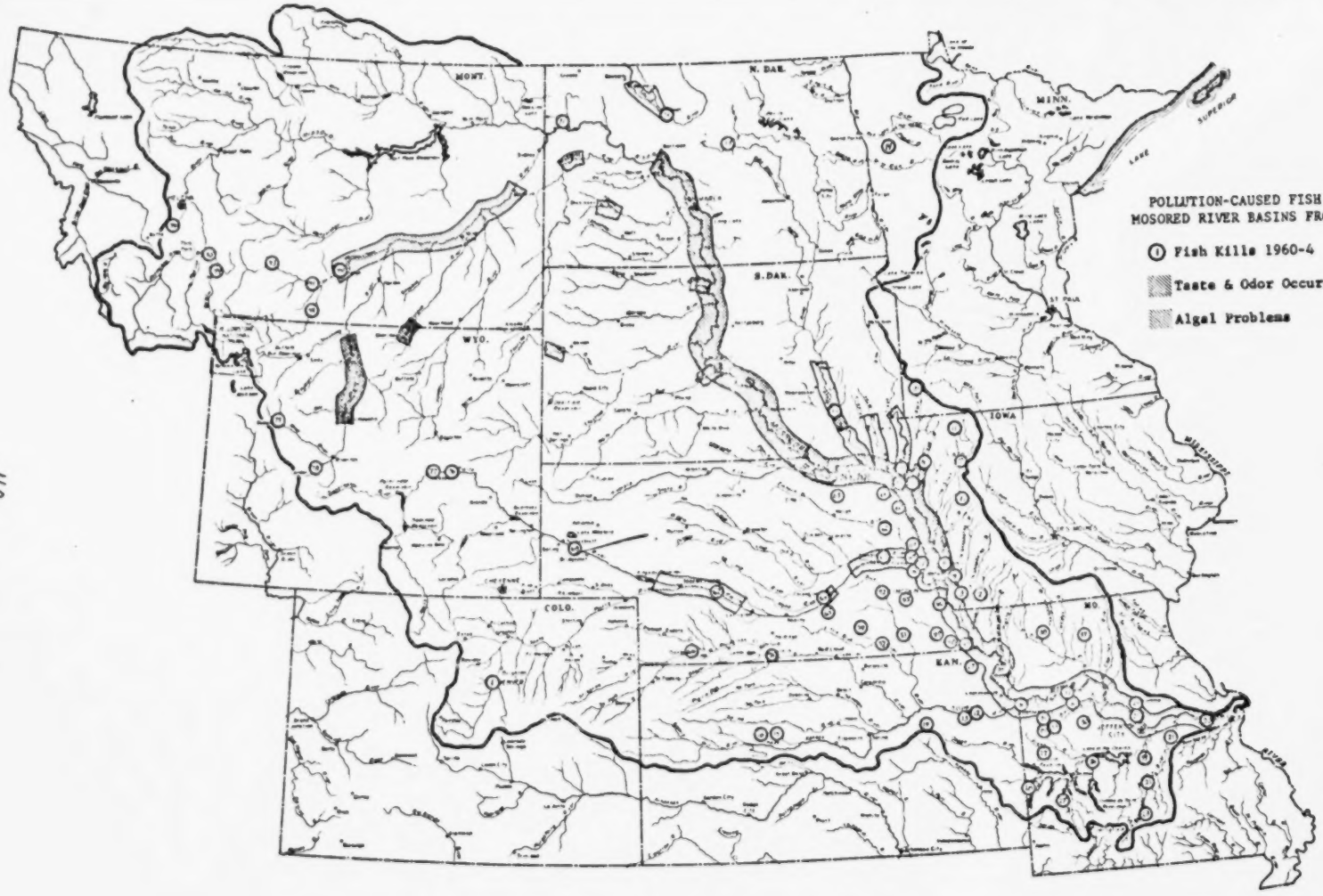
willing to cooperate with us in the development of the system. Several of the States have considerable quantities of data which could be stored. We will need a uniform scale complete set of Basin maps for river mile coding. Additional detailed maps for some of the highly developed areas would be desirable if such are available.

Members of the staff of the Regional Office, Water Resources Activities, have been given key positions in the Work Groups of the Standing Committee for Comprehensive Planning of the Missouri Basin Inter-Agency Committee. Staff members have been assigned as chairmen of Work Groups or Task Forces relating to field of water supply, water quality, and water quality control. A staff member is chairman of Work Group V which is assigned the responsibilities of developing working papers for each of the nine regions of the Basin. These working papers are the documents which will be used in developing the Type I Framework Comprehensive Plan. The scheduling of the development of these working papers is shown in the Comprehensive Basin Planning tentative schedule developed by the Standing Committee on Comprehensive Planning of the Missouri Basin Inter-Agency Committee. The development of these working papers will be a cooperative effort of representatives from seven Federal agencies and ten Missouri River Basin States.

The Office of Business Economics of the Department of Commerce is developing economic projections for the nine regions of the Missouri Basin. Using these basic data, an economic study will be developed for the entire area.

While awaiting preliminary economic and demographic data and projections from the Department of Commerce (Office of Business

Economics) the Economic Work Group of the Missouri Basin Inter-Agency Committee has assigned a number of duties in regard to an Economic Base Study. We have accepted assignments regarding population, labor forces, and industrial organization, including location factors pertinent to economic and population projections. Our limited staff has prevented us in carrying out our responsibilities in an adequate manner. These data will be useful for the Missouri-Souris-Red River Basins Comprehensive project.



MISSOURI RIVER BASIN
STATES

MISSOURI-SOURIS-RED RIVER BASINS COMPREHENSIVE PROJECT
Kansas City, Missouri January 1966

POLLUTION-CAUSED FISH KILLS IN THE MOSORED RIVER BASINS FROM 1960 TO 1965

River or Lake Affected	Nearest Town or City	Estimated Number Killed	Est. Miles or Acres Affected	Operations Responsible for Kill	Year	Map No.
COLORADO						
Rocky Mount Lake	Denver	30,000	20A	Agricultural Poisons--Unknown	1960	1
IOWA						
Nodaway River	Corning	1,000	-	Domestic Sewage	1961	2
Walnut Creek	Red Oak	500	2M	Agricultural Poisons	1963	3
Lower Silver Creek	Malvern	-	3M	Agricultural Poisons	1963	4
Keg Creek	Glenwood	2,000	1M	Sewage System	1964	5
Boyer River	Early	-	3M	Agricultural Poisons	1960	6
Storm Lake	Storm Lake	150	-	Unknown	1965	7
Floyd River	Sioux City	-	-	Industrial Wastes	1962	8
Floyd River	Plymouth Co.	50	1M	Unknown	1963	9
Floyd River	Plymouth Co.	150	1M	Agricultural Poisons	1963	9
Big Sioux River	Sioux City	10,000	6M	Unknown	1964	10
Little Sioux River	Spencer	300	-	Domestic Sewage	1961	11
KANSAS						
Kansas River	Lawrence	-	-	Industrial Wastes	1961	12
Kansas River	Tecumseh	2,000	-	Industrial Wastes	1965	13
Level Creek	White City	115,000	10M	Feed Lot Run Drainage	1963	14
Big Creek	Ellis	2,000	2M	Food Products--Ind. Operations	1963	15
Spring Creek	Wakeeney	-	-	Agricultural Poisons	1961	16
Nortons Branch	Hiawatha	1,200	6M	Unknown	1964	17

TABLE CONT.

MINNESOTA						
Beaver Creek	Olivia	-	5M	Food Products--Ind. Operations	1963	18
Popple River	Fosston	-	7M	Industrial Wastes	1961	19
MISSOURI						
Dubois Creek	Washington	350	-	Agricultural Poisons	1960	20
Gasconade River	Mt. Sterling	25,000	35M	Unknown	1964	21
Lt. Dry Fork River	Rolla	8,400	7M	Sewage System	1964	22
Big Piney River	Cabool	2,000	1M	Sewage System	1964	23
Delaney Pond	Cabool	250	1A	Poisons	1964	23
L. Bonne Femme Creek	Columbia	300	1M	Pipe Line Operations	1964	24
Big Cedar Creek	Columbia	8,000	12M	Mining Operations	1962	24
Farm Pond	Columbia	100	2A	Agricultural Poisons	1962	24
Big Cedar Creek	Columbia	25,000	30M	Mining Operations	1963	24
Hinkson Creek	Columbia	5,000	1M	Mining Operations	1963	24
Cedar Creek	Ashland	10,000	29M	Mining Operations	1960	25
Cedar Creek	Ashland	5,600	8M	Mining Operations	1964	25
Cedar Creek	Ashland	5,500	-	Industrial Wastes	1965	25
Lindley Creek	Hermitage	5,000	8M	Other Operations	1960	26
Horse Creek	Lockwood	850	3M	Domestic Sewage	1960	27
Lt. Dry Wood Creek	Nevada	250	-	Sewage	1965	28
Monegan Creek	Appleton City	10,000	5M	Mining Operations	1961	29
Flat Creek	Sedalia	1,750	5M	Combination of Ind. Operations	1964	30
Flat Creek	Sedalia	500	3M	Combination of Ind. Operations	1964	30
Meyer Lake	Marshal	200	5A	Industrial Wastes	1962	31
Salt Fork Creek	Marshal	-	12M	Other Operations	1963	31
Salt Fork River	Marshal	10,000	5M	Sewage Systems	1964	31
Salt Fork River	Marshal	2,000	3M	Sewage Systems	1964	31
Stark River	Waverly	3,600	3A	Other Operations	1961	32
Tebo Creek	Windsor	7,500	5M	Mining Operations	1961	33
A-Creek	Urich	100	1M	Refuse Disposal	1963	34
Montrose Lake	LaDue	-	1M	Industrial Wastes	1962	35

TABLE CONT.

Montrose Lake	LaDue	100	1M	Industrial Wastes	1962	35
Montrose Lake	LaDue	1,000	1A	Industrial Wastes	1962	35
Montrose Lake	LaDue	10,500	1M	Sewage System	1963	35
Canal-Montrose Lk.	LaDue	1,500	1M	Sewage System	1963	35
Indian Creek	Kansas City	1,000	1M	Industrial Wastes	1960	36
Missouri River	Kansas City	280,000	130M	Unknown	1964	36
Locust Creek	Milan	250	3M	Food Production Oper.	1964	37
Thompson River	Trenton	1,000	20M	Sewage System	1964	38
Big Piney River	Waynesville	2,000	6M	Domestic Sewage	1960	39
MONTANA						
Yellowstone River	Billings	500	-	Agricultural Poisons	1961	40
Stillwater River	Columbus	-	-	Poisons	1964	41
Bluewater Creek	Fromburg	-	4M	Agricultural Poisons	1961	42
Yellowstone River	Livingston	-	45M	Unknown	1961	43
Rat Lake	Bozeman	200	-	Agricultural Poisons	1960	44
E. Gallatin River	Bozeman	50	-	Domestic Sewage	1961	44
Cottonwood Creek	Bozeman	1,000	-	Agricultural Poisons	1962	44
W. Gallatin River	Manhattan	-	4M	Agricultural Poisons	1961	45
L. Boulder River	Boulder	200	18M	Agricultural Poisons	1962	46
NEBRASKA						
Oberst Farm Pond	Falls City	30	-	Feedlot Runoff	1965	47
Rock Creek	Salem	20	1M	Unknown	1964	48
Nemaha River	Table Rock	-	-	Unknown	1964	49
Steinhardt Pk. Lake	Nebraska City	-	-	Unknown	1965	50
Blue River	Beatrice	3,000	1M	Other	1964	51
Blue Cutoff	Beatrice	1,500	3M	Rail Trans. Operations	1964	51
Big Blue River	Seward	3,000	5M	Other	1960	52
Big Blue River	Seward	8,000	-	Industrial Wastes	1965	52
Little Blue River	Fairbury	7,000	4M	Sewage System	1964	53
Turkey Creek	Geneva	23,232	-	Other	1965	54
Middle & Salt Creeks	Lincoln	7,500	1M	Unknown	1960	55

TABLE CONT.

City Lake-14th St.	Lincoln	200	2A	Unknown	1964	55
Thorston Farm Pond	Wahoo	175	-	Poisons	1964	56
Two Rivers Carp Lk.	Valley	200	-	Fertilizer	1965	57
Murphys Lake	Fremont	1,000	6A	Feedlot Runoff	1964	58
Elkhorn River	Arlington	2,200	8M	Refuse Disposal	1963	59
Logan Creek	Pender	700	10M	Unknown	1964	60
Logan Creek	Wakefield	5,000	-	Other	1965	61
Pebble Creek	Dodge	300	-	Other	1965	62
Lost Creek	Schuyler	-	2M	Other	1962	63
Shell Creek	Schuyler	-	8M	Unknown	1962	63
Wood River	Grand Isle	100,000	2M	Industrial Wastes	1962	64
Heartwell Pk. Lake	Hastings	-	1A	Other	1962	65
Hastings Naval Lk.	Hastings	4,000	5A	Poisons	1964	65
Hastings City Lake	Hastings	5,000	-	Unknown	1965	65
Can Meeker	Trenton	-	-	Poisons	1963	66
Platte River	Gothenburg	-	6M	Unknown	1964	67
Stream Drain	Minatare	-	2M	Feedlot Runoff	1963	68
Bazille Creek	Creighton	-	1M	Industrial Wastes	1961	69
Franklin Canal	Republican	-	-	Poisons	1963	70
NORTH DAKOTA						
Little Muddy River	Williston	-	-	Industrial Wastes	1961	71
Souris River	Minot	-	40M	Domestic Sewage	1961	72
Souris River	Minot	62,500	-	Sewage System	1964	72
Harvey Reservoir	Harvey	22,000	86A	Agricultural Poisons	1961	73
SOUTH DAKOTA						
James River	Mitchell	-	40M	Domestic Sewage	1961	74
Big Sioux River	N. Sioux City	5,000	5M	Poisons	1964	75
WYOMING						
Deer Creek	Glenrock	20	5M	Industrial Wastes	1962	76

TABLE CONT.

Deer Creek	Glenrock	-	5M	Pipe Line Operations	1964	76
Alcova Reservoir	Casper	600	1M	Power Operations	1964	77
L Popo Agie River	Lander	135	1M	Unknown	1962	78
Middle Fk. Popo Agie River	Lander	1,500	1M	Swimming Pool	1964	78
North Fk. Popo Agie River	Lander	18	1M	Feedlot Runoff	1964	78
Horse Creek	Dubois	900	3M	Agricultural Poisons	1960	79

PROBLEM SIGNIFICANCE:

The streams and aquifers of the Missouri-Souris-Red River of the North Basins are important sources of water, serving all phases of the area's economy, providing for such needs as water supply, navigation, irrigation, recreation, removal of wastes, etc. Multi-purpose use and reuse has resulted in a number of major water quality problems. Increasing demands will require additional reuse of the waters.

The utilization of the waterways for disposal of wastes has created localized pollution problems, with dissolved oxygen deficits, and bacterial build-ups. A large majority of the municipalities in the basin have treatment works in operation or under construction, but many of the plants are overloaded. Below most of the larger towns and in many other reaches, the quality of the water in the receiving stream has deteriorated. In some instances, fish kills have resulted.

Treated wastes discharged and surface runoff from agricultural lands have increased the algal nutrients in the streams. Impoundments have reduced the natural turbidity. The combination of these two has resulted in algal blooms creating complex taste and odor problems in municipal water supplies. This is a recurring problem, especially on the lower Missouri River.

Agriculture is a major occupation. Pesticides, herbicides, and associated agricultural wastes carried by stream runoff and return irrigation flows are degrading stream quality. Salts leached from soils or flushed from irrigated areas in Kansas and the Dakotas have increased the total dissolved solids far in excess of desirable concentrations.

More than 1,000 food processing plants are operating in the study area. They freeze, can, grind, package and otherwise process meat, dairy products, fruit, vegetables, potatoes, sugar beets, grain and other products. The handling of such wastes in the northern part of the study area is further complicated by the severe weather conditions during the winter.

The overall problem to be resolved through careful examination of present physical makeup of the waterways, together with forecasts as to probable future changes, is that of providing a water quality which will meet local use requirements in such a manner as to permit a continued high level of public health, economic and recreational opportunities throughout the Missouri-Souris-Red River of the North Basins.

IMPETUS AND OBSTRUCTIONS TO IMPLEMENTING POLLUTION CONTROL:

Principal Source of Support

The primary impetus for starting the project at this time is the present concern of the States and local agencies regarding existing pollution problems.

Support of pollution control is general in the Missouri-Souris-Red River of the North area. While the population affords a broad degree of support, the stronger supporting element to the pollution control effort at this time is State Government.

The Governor of Colorado requested the enforcement action on the South Platte. The Governors of Minnesota and North Dakota asked for similar action on the Red River of the North and have expressed a desire of establishing a commission for the Hudson Bay drainage area.

The State of Kansas has developed a comprehensive water plan. The State agencies are actively inventorying industrial water uses, agricultural and other water use activities which have resulted in waste discharges to the streams.

The pollution control agencies of the States have been increasingly vigorous and effective in advancing municipal and industrial waste treatment.

Membership in the Missouri Basin Inter-Agency Committee serves to broaden the scope in relationship with other Federal and State agencies. Work Group activities provide an effective means of extending the pollution control effort. Participation in MBIAC sponsored studies of water and related land resources provides a means of including water quality consideration in broad inter-agency resource planning.

At present studies are underway in the Yellowstone and lower Missouri Subbasins of the Missouri Basin area.

Public relation activities, such as speeches before national groups, informational releases to news media, and working contacts with State and Federal agencies, have been limited. As soon as the project is adequately staffed, these activities will be increased.

Pollution Control Authorities

All of the States have effective water pollution control organizations. Their effectiveness has generally been centered on consultation and licensing rather than enforcement actions. Manpower for these agencies ranges from less than adequate strength in some of the States, such as Nebraska, to well-staffed agencies, such as those in Kansas.

Obstructions to Effective Control

There are no apparent positive obstructions to pollution control in the Missouri-Souris-Red River Basins area.

Some food producing industries, miscellaneous manufacturers, municipalities and others, have, at times, resisted aspects of the pollution control effort. These interests have accepted the need for control; however, their acceptance of the need for control has not entailed accepting direct responsibility for action.

Industry characteristically resists limits to its freedom to use water to transport its wastes. Waste treatment is not regarded as a normal production cost. At times, the industry hopefully expects the municipality to handle the wastes. This sometimes results in a continuing enforcement action, such as the one at Omaha, Nebraska.

Water rights for quality control are not specifically recognized and a body of overlapping prior rights and statutorally recognized water uses could conceivably preempt flows for quality control. The legal status of flows for quality control purposes is indeterminate in all of the States of the Basin. (Kansas is proposing legislation.)

The limited access to data regarding production of wastes from some industrial sources or complete absence of such data adds to the difficulty of determining the treatment and flow needs to maintain certain downstream water quality levels. These obstructions can only be removed through legislation by the States and by judication of water rights. The legal problems are recognized and the States' Committee of the Missouri Basin Inter-Agency Committee is evaluating the existing State laws. Changes undoubtedly will be needed in this field for full implementation of the program. Furthermore, to insure implementation of the program, it will be necessary to gain full cooperation of industrial plants throughout the area.

TECHNICAL BACKUP REQUIREMENTS:

The State of Kansas is making a survey of industrial water use at the present time and will include information on waste discharge by the industries in its inventory. They are also surveying cattle feed lots and determining the pollutional load from such operations. Demonstration projects are in operation or planned to test effective methods of handling these wastes to prevent pollution to the receiving streams.

Cooperative agreements with other Federal agencies such as Fish and Wildlife, Bureau of Outdoor Recreation, and the Corps of Engineers will be used to obtain specialized data for the project.

Inventories of industrial wastes will be up-dated throughout the basin. Inventories of exisiting water uses and present needs will be tabulated by the Task Forces of MBIAC. These data along with projected needs and future water uses will be available to the project.

The future use of the water resources will be determined by the people in the basin.

REGIONAL LABORATORY CONTRIBUTION:

Preliminary planning for the Missouri Basin Regional Laboratory to be established at Columbia, Missouri, indicates that emphasis will be placed on waste treatment, water quality control, reduction of nutrients in treated wastes and control of pollution from agricultural activities. Improved methods of treatment of industrial and municipal wastes, the control of pollution from agricultural activities combined with the reduction of nutrients in these treated wastes would make an excellent contribution to the project and assure the achievement of the project's objectives. As the project develops , there may be other research problems, which the Regional Laboratory could resolve.

COORDINATED INTER-AGENCY COMPREHENSIVE PLANNING:

The Missouri Basin Inter-Agency Committee has been charged with the responsibility of developing a Comprehensive Framework Study (Type I) for the Missouri River Basin. A Standing Committee was established to coordinate the efforts of Federal and State agencies in the accomplishment of a plan for water and related land resources development. Members of the staff of the Regional Office, Water Resources Activities were given key positions in Work Groups of the Standing Committee for Comprehensive Planning of the Missouri Basin Inter-Agency Committee. This personnel has been transferred to the Comprehensive Project. The staff members of the project are assigned as Chairmen of Work Groups or Task Forces relating to the fields of water supply, economics, hydrology, water quality and water quality control. A staff member is Chairman of Work Group V, which is assigned the responsibility of developing working papers for each of the nine regions of the Basin. These working papers are the documents which will be used in the development of Type I Framework Comprehensive Plan. The development of these working papers will be a cooperative effort of representatives of the seven Federal agencies and ten Missouri River Basin States.

The Office of Business Economics (Department of Commerce) is developing economic projections for the Missouri Basin. While waiting on the preliminary economic demographic data and projections, the Economic Work Group of the Missouri Basin Inter-Agency Committee has assigned a number of duties in regard to economic base studies. We have accepted assignments regarding population, labor force, industrial organization,

including location factors pertinent to economic and population projections.

A staff member as Chairman of Work Group V has assigned to Task Forces the development of working papers which will include inventory of present conditions an outline of future water needs for all functional uses. These Task Forces will include membership from the States and will be an indication of the public desires for future uses of the water resources.

The data which are being developed will be useful to the Missouri-Souris-Red River Basins Comprehensive Project. Our limited staff has added to our difficulties in carrying out our responsibilities in an adequate manner.

FISCAL YEAR 1966 ACTIVITIES:

The following activities will be initiated:

1. A project management scheme for the development phase of the Project will be provided--through contract.

2. STORET river mile coding will be started for the project area in Missouri, Kansas, and Nebraska.

3. A model of the Kansas River will be developed by contract.

4. Inventories of industrial waste will be updated in Kansas.

5. Development of water supply and water pollution control reports will continue, as required by Federal construction agencies.

The staff will continue its participation in the work of the Standing Committee for Comprehensive Planning of the Missouri Basin Inter-Agency Committee. A working paper for the lower Missouri tributaries is scheduled for early completion and work is to be started on similar documents for the Yellowstone and Platte River Basins. Much of the data required for the development of these working papers will be supplied by the Work Groups of the Standing Committee on Comprehensive Planning. These activities can be well coordinated with the overall work plan for the comprehensive project.

ACCOMPLISHMENTS THROUGH FISCAL YEAR 1966:

There has been an active program of construction of remedial works throughout the basin. The following tables give the number of projects by States which have been constructed with assistance from the Federal government since December 1956.

Region VI

Total Grants and Project Costs for Treatment Works
(December 1956 through December 31, 1965)

State	No. of Projects	Est. Total Project Costs	Total Approved Eligible Costs	Grant Funds
Iowa	138	$ 55,963,443	$ 47,126,907	$10,901,581
Kansas	197	43,176,761	33,903,570	9,625,582
Minnesota	143	54,910,371	46,256,842	12,322,510
Missouri	186	167,998,060	142,575,530	14,727,839
Nebraska	221	47,383,501	46,240,328	8,756,871
N. Dakota	143	17,974,739	12,987,688	3,879,172
S. Dakota	105	13,746,774	11,809,545	3,816,966
Total	1,133	$401,153,649	$340,900,410	$64,030,521

Total Grants and Project Costs for Treatment Works
Under Accelerated Public Works Program
(November 1962 through December 31, 1965)

State	No. of Projects	Est. Total Project Costs	Total Approved Eligible Costs	Grant Funds
Kansas	3	$ 152,042	$ 125,167	$ 62,582
Minnesota	22	2,483,194	2,405,351	1,179,846
Missouri	26	4,121,127	3,617,236	1,802,106
Total	51	$ 6,756,363	$ 6,147,754	$ 3,044,534

Treatment Works Combined Under WPC and APW Acts

State	No. of Projects	Est. Total Project Costs	Total Approved Eligible Costs	Grant Funds	
				APW	WPC
Nebraska	8	$ 392,679*	$ 392,679*	$88,800	$106,845

*Included in total WPC Grants

Region VIII

Total Grants and Project Costs for Treatment Works
(December 1956 through December 31, 1965)

State	No. of Projects	Est. Total Project Costs	Total Approved Eligible Costs	Grant Funds
Colorado	103	$ 47,249,318	$ 42,440,219	$ 8,926,899
Montana	87	15,513,417	13,124,299	3,695,827
Wyoming	49	7,471,285	6,571,557	1,816,202
Total	239	$ 70,234,020	$ 62,136,075	$14,438,928

Federal Water Pollution Control Administration grant projects were approved during Fiscal Year 1966 for the following municipalities:

Iowa

Clinton	Madrid	Stratford
Elliott	Olin	

Kansas

Agra	Glen Elder	Mayfield	Shawnee Mission Tsp (I)
Andover	Greeley	Mission Tsp (199)	Shawnee Mission Tsp (T)
Columbus	Humboldt	Morrowville	St. Francis
Coolidge	Iuka	Robinson	St. John
Denison	Jennings	Rush Center	
Easton	Kanopolis	Scranton	

Minnesota

Bertha	Hector	Maple Plain	Orr
Fairmont	Holdingford	Moorhead	Richmond
Forest Lake	Mable	New Prague	Swanville
Grand Rapids	Madelia	Northfield	Wanamingo

Missouri

Gladstone	King City	Norborne	Seneca
Hayti	Kingsville	Orrick	Scott City
Jefferson City (282)	Madison	Republic	St. Joseph (150)
Kansas City (142)	Newburg	Sedalia (270)	Urich

Nebraska

Auburn	Chambers	Hadar	Newman Grove	Silver Creek
Avoca	Dannebrog	Humboldt	Oakland	Spencer
Bee	Dunbar	Laurel	Papillion	Sutton
Bloomfield	Gering	Lyon	Ponca	Wilsonville
Boelus	Gretna	Malmo	Roca	Winside
Burwell	Grand Island	Mullen	Scribner	Valley

North Dakota

Bismarck	Grandin	Mapleton	Surrey
Beulah	Kensal	Medina	
Buxton	Mayville	Northwood	

South Dakota

Aberdeen	Clear Lake	Oldham
Alexandria	McCook	Peever
Brookings	Mission	

Colorado

Denver Metropolitan Sewage Disposal District #1 (COLO-112)
Eagle Sanitation District (COLO-120)
Sterling
East Canon Sanitation District (122)
Platteville
Craig
Buena Vista Sanitation District (129)
Rifle
Bear Creek Water and Sanitation District (127)

Montana

Big Sandy	Missoula
Cascade	Richland
Fairview	West Yellowstone

In Fiscal Year 1965, the Corps of Engineers had under construction or authorized three projects which included flow regulation storage. These projects were the Rathbun (under construction) on the Chariton River, the Milford (under construction) on the Republican River, and the Fort Scott (authorized) on the Marmaton River.

The following brief summaries indicate legislative action taken by States of the Basin.

Colorado - New water pollution control legislation, which will set up a commission, has been presented to the Governor for signature.

Iowa - A new Iowa Water Pollution Control Commission has been established.

Kansas - An amendment to the Kansas Water Appropriation Act was adopted by the 1965 legislature. The purpose of this amendment is to provide the necessary authority for the Division of Water Resources to protect storage releases made to a stream under the authority of the State of Kansas or released pursuant to an agreement between the State and Federal Government. The legislation is aimed at protecting those releases made for low flow or other specified purposes and makes it unlawful for any person to divert water released under these special circumstances unless an agreement has been reached between the State and the person desiring to make such diversion. The amendment also simplifies the administrative procedures for carrying out the responsibilities assigned to the Division of Water Resources.

Minnesota - The State of Minnesota has requested a compact commission on the Red River of the North.

Missouri - Revision of water pollution control legislation in the State of Missouri is being considered and legislation may be presented.

North Dakota - North Dakota's Thirty-ninth Legislative Assembly made the following major changes in the State's water laws: (1) established a "contract payments revolving fund" to replace the multiple purpose fund; (2) outlined the State's policy concerning water resources development including furnishing of required local assurances; (3) provided for simplification of the administrative procedure involved in granting water permits; (4) streamlined certain sections of the State law concerning the duties and authority of the State Geologist and water management districts; (5) broadened the definition of "water pollution" and authorized the State Water Commission to establish rules and regulations relative to such definition.

REIMBURSABLE STUDIES:

At the request of the Rock Island District of the Corps of Engineers, the office is developing flow regulation reports on the Wapsipinicon, the Iowa-Cedar, the Skunk and Des Moines River systems in Iowa. It is estimated that the development of these reports will require three man years of work and funds in the amount of $23,000 have been allocated by the Corps for the completion of the reports.

One engineer and a secretary have been assigned. We are recruiting for a second engineer to assist in the development of these reports.

Schedule calls for completion of the reports on the Des Moines, the Wapsipinicon and the Skunk in this Fiscal Year. All of these river systems are tributary to the Mississippi River and therefore, not directly related to the project's objectives.

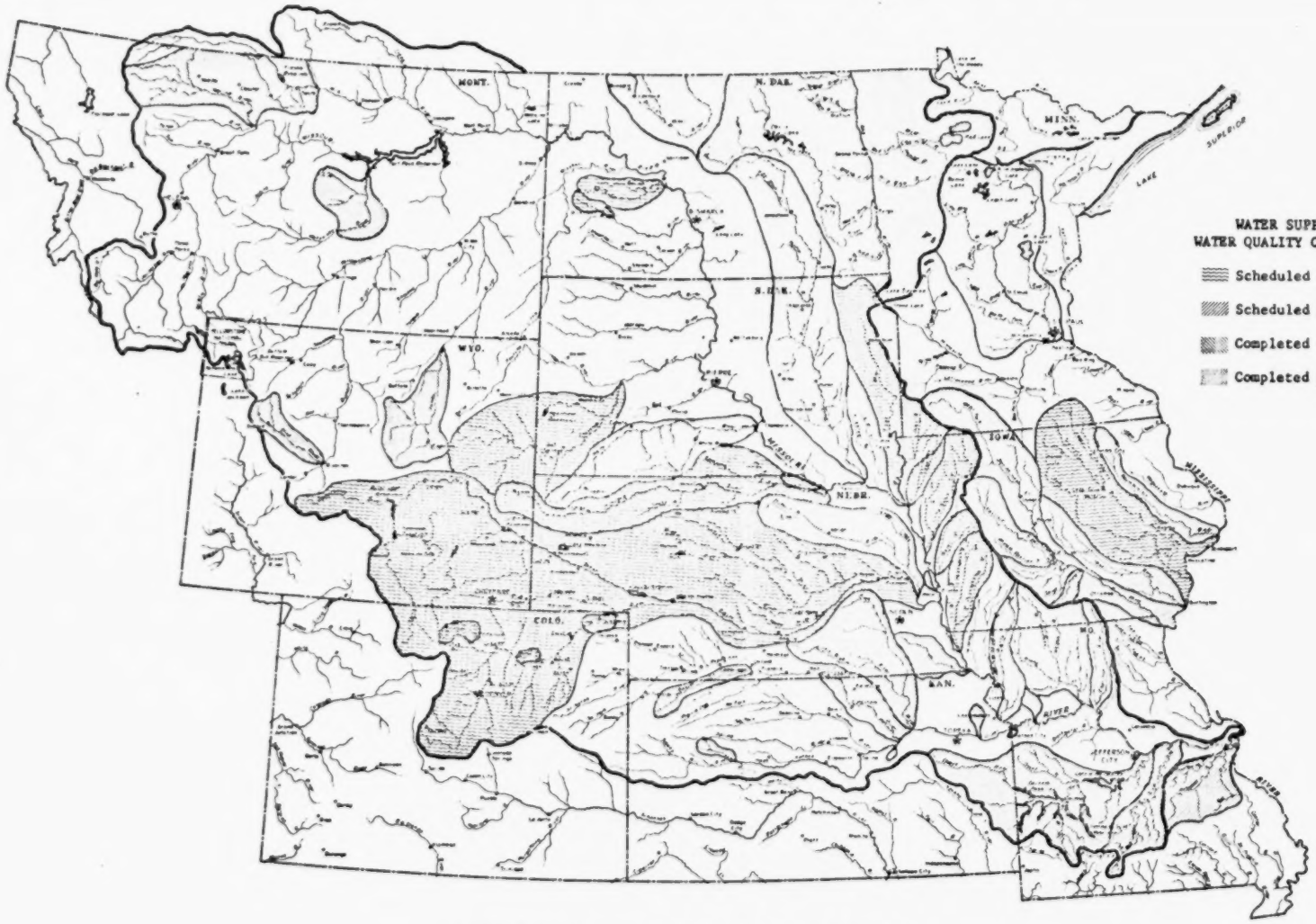
FLOW REGULATION STUDIES:

Flow regulation studies for projects in the States of Montana, Wyoming and Colorado are being developed by the Regional Office in Denver. In Fiscal Year 67, this assignment will be transferred to the Comprehensive Project.

During Fiscal Year 65 and 66, reports were completed on the following projects: Herndon (Kansas and Nebraska), Milford (Kansas), Nemaha (Kansas and Nebraska), Big Blue (Nebraska, Kansas), Cache L. Poudre (Colorado), Northeast Montana (Montana), Wayne River (Wyoming), Powder River (Wyoming), Red River of the North (North Dakota, Minnesota), Osage (Kansas and Missouri), Blue (Kansas City), Little Blue (Kansas City), Meramec (Missouri) and Wears Creek (Missouri).

Reports scheduled for completion in Fiscal Year 66 are as follows: Narrows Project (Colorado), Lower Musselshell (Montana), Upper South Platte (Colorado), Marias-Milk (Montana), St. Vrain (Colorado), Elkhorn (Nebraska) and Papillion Creek (Nebraska).

Also included is a listing of Missouri Basin Projects with suggested target dates which have not been scheduled.



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MISSOURI RIVER BASIN
STATES

MISSOURI-SOURIS-RED RIVER BASINS COMPREHENSIVE PROJECT
Kansas City, Missouri — January 1966

MISSOURI BASIN PROJECTS PLANNED FOR THE FUTURE BUT NOT SCHEDULED

PROJECT	SPONSOR	TARGET DATE
Julesburg (Colo-Nebr.)	Denver Bureau of Reclamation	1968
Sheep Creek (Nebraska)	Denver Bureau of Reclamation	1967
West Platte (Wyoming-Nebraska)	Denver Bureau of Reclamation	1970
Ponca Creek (Nebraska)	Denver Bureau of Reclamation	1969
Mid State (Nebraska)	Denver Bureau of Reclamation	
Crofton (Nebraska)	Denver Bureau of Reclamation	1967
Abilene (Kansas)	Denver Bureau of Reclamation	1967
Belvue (Kansas)	Denver Bureau of Reclamation	1968
Chapman (Kansas)	Denver Bureau of Reclamation	1968
Clay Center (Kansas)	Denver Bureau of Reclamation	1970
Concordia (Kansas)	Denver Bureau of Reclamation	1970
Grantville (Kansas)	Denver Bureau of Reclamation	1968
Kipp (Kansas)	Denver Bureau of Reclamation	1967
Lawrence (Kansas)	Denver Bureau of Reclamation	1969
Menoken (Kansas)	Denver Bureau of Reclamation	1968
Oberlin (Kansas)	Denver Bureau of Reclamation	1967
O'Neill (Nebraska)	Denver Bureau of Reclamation	1968
Niobrara River (Nebraska-Wyoming)	Denver Bureau of Reclamation	1967
Perry (Kansas)	Denver Bureau of Reclamation	1970
Rossville (Kansas)	Denver Bureau of Reclamation	1970
Mott Unit (North Dakota)	Billings Bureau of Reclamation	1967
Pollock Herreid Unit (South Dakota)	Billings Bureau of Reclamation	1967

MISSOURI BASIN PROJECTS PLANNED FOR THE FUTURE BUT NOT SCHEDULED (Cont.)

PROJECT	SPONSOR	TARGET DATE
Shoshone Extension Unit (Wyoming)	Billings Bureau of Reclamation	1967
Oahe (South Dakota)	Billings Bureau of Reclamation	1968
Niobrara River-Gavins Point (Nebraska and South Dakota)	Omaha Corps of Engineers	
Nishnabotna River (Iowa)	Omaha Corps of Engineers	
Little Sioux River (Iowa-Minnesota)	Omaha Corps of Engineers	1967
Platte River (Nebraska)	Omaha Corps of Engineers	1967
Big Sioux River (Iowa-South Dakota - Minnesota)	Omaha Corps of Engineers	1968
Cheyenne River (South Dakota-Wyoming)	Omaha Corps of Engineers	1968
Elkhorn River (Nebraska)	Omaha Corps of Engineers	1968
Aowa and South Creeks (Nebraska)	Omaha Corps of Engineers	
Bow Creek (Nebraska)	Omaha Corps of Engineers	
Boyer River (Iowa)	Omaha Corps of Engineers	
Floyd River (Iowa)	Omaha Corps of Engineers	
James River (North Dakota-South Dakota)	Omaha Corps of Engineers	
White River (Nebraska-South Dakota)	Omaha Corps of Engineers	
Omaha Creek (Nebraska)	Omaha Corps of Engineers	
Perry Creek (Iowa)	Omaha Corps of Engineers	
Shell Creek (Nebraska)	Omaha Corps of Engineers	
Soldier Creek (Iowa)	Omaha Corps of Engineers	
Weeping Water Creek (Nebraska)	Omaha Corps of Engineers	
Salt Creek (Nebraska)	Omaha Corps of Engineers	
Sun River (Montana)	Omaha Corps of Engineers	

MISSOURI BASIN PROJECT PLANNED FOR THE FUTURE BUT NOT SCHEDULED (Cont.)

PROJECT	SPONSOR	TARGET DATE
Marias River (Montana)	Omaha Corps of Engineers	
Skunk Creek (South Dakota)	Omaha Corps of Engineers	
Niobrara River (Nebraska-Wyoming)	Omaha Corps of Engineers	

PERSONNEL SUMMARIES OF AUTHORIZED POSITIONS NOT FILLED AS OF JANUARY 1, 1966

Title	Grade	Series	Rate	Position #	EOD Date	Remarks
Deputy Director (Sup. San. Engr.)	GS-14	819	14,680	EH 65-415	4-1-66	Awaiting classification of applicants form 57 by CSC.
Chief, Tech. Opr. Sect.	GS-14	819	14,680	EH 65-	5-8-66	Job description to Washington Oct. '65 for classification -- not advised of action.
Chemical Engineer	GS-13	893	12,510	BSS 4771	4-1-66	Unsuccessful in recruiting.
Sanitary Engineer	GS-11	819	9,267	EH 65-413	3-13-66	Could not reach anyone through register provided by CSC.
Economist	GS- 9	110	7,479	EH 65-412	3-1-66	Awaiting clearance by CSC on selected candidate.
Data Systems Analyst	GS- 9	334	7,479		4-1-66	Holding up job description pending classification of applicant.
Hydraulic Engineer	GS-11	1315	9,267	EH 65-671	4-1-66	Unable to recruit at GS-11.

1966 BUDGET SUMMARY

	1st Half	2nd Half	Total
Personnel	$36,035	$58,343 /1	$94,378
Travel	2,999	7,001 /2	10,000
Equipment	-	17,165 /3	17,165
Space	-	-	-
Contracts	-	99,815 /4	99,815
Other	2,683	7,000 /5	9,683
Temporary Personnel	-	2,700 /6	2,700
	$41,717	$192,024	$233,741

Project Balance -- $234,000 - $233,741 = $259.00

Project Needs -- An additional $5,500 for purchase of Mylar Maps.

/1 Includes attached reporting date projections.

/2 Figure could be high because of late reporting dates of new personnel.

/3 Includes $7,165 order of laboratory equipment and $10,000 for regular office equipment for staff in 1966.

/4 Includes $37,720 with University of Kansas for model study and $49,595 for a proposed contract with University of Kansas (Summer proposed only) and $12,500 for M. T. I. Management Study.

/5 Includes $2,500 telephone cost.

/6 Includes $450.00 for month of June for 6 temporaries.

ESTIMATED E.O.D. DATES
and
COSTS OF ADDITIONAL PERSONNEL

Title	Report Date	Salary	Benefits	Total
Deputy Director	April 1	$3671	$271	$4000
Technical Ops. Chief-GS-14	May 8	2426	166	2600
Chemical Engineer-GS-13	April 1	3125	234	3400
San. Engineer-GS-11	March 13	2818	218	3100
Economist-GS-9	March 1	2592	205	2800
Data Systems Analyst	April 1	1872	148	2020
Statistical Clerk, Kennedy	February 13	2384	204	2600
Additional Personnel				$20,500

PLANS AND SCHEDULES FOR FISCAL YEAR 67:

Major emphasis will be placed on the area adjacent to the Missouri River (Sioux City to St. Louis) and Kansas River, (Junction City to Kansas City). It is also necessary to initiate work in the Red River of the North Basin to provide coordination with the International Joint Commission and enforcement activities. This will require the establishment of a Program Office in Bismarck, North Dakota, early in Fiscal Year 1967. One of the early tasks of this Office will be to start work on a model of the Red River of the North, including the effects of the Garrison Diversion on the Red River system.

An advisory Committee will be established, selected for their interest in water pollution control and water resources development.

Other items which will be undertaken are:

1. The establishment of the STORET System.
2. Cooperative studies with the Corps of Engineers on mainstem reservoirs.
3. Initiation of economic studies. (see page
4. Measurement and sampling programs in assigned areas.
5. Contract for a second phase of the PERT Management Study.
6. Special studies by the U. S. Fish and Wildlife and Bureau of Outdoor Recreation.
7. Continue flow regulation studies.
8. Cooperation with the Missouri Basin Inter-Agency Committee.

We respectfully request permission for an increase in the number of positions from 33-40 so as to adequately staff for the planned work.

WORKING BUDGET SUMMARY

Date January, 1966

Water Supply and Pollution Control
Working Budget
1967

Activity Comprehensive

Program or
Project MOSORED Basin Comp. Prj.

Headquarters Location Kansas City, Missouri

	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	Total
Pers. Comp. & Benefits /1	$ 62,492	$ 73,053	$ 84,837	$ 91,858	$312,240
Travel	7,000	5,000	9,000	9,000	30,000
Equipment /2	21,783	42,566	61,349	82,130	207,828
Rental of Space /3	1,250	1,250	1,250	1,250	5,000
Contracts	35,000	43,750	43,750	52,500	175,000
Other	5,000	5,000	5,000	4,932	19,932
TOTAL	$132,525	$170,619	$205,186	$241,670	$750,000 /6

Allocation of Authorized Permanent Positions:	Project Headquarters	Bismark Prog. Office	Total
	35	5	40 /4
(Temporary) /5	(10)		(10)

/1 The required 30% lag in new strength has been figured by computing only 35% of new strength on duty during 1st qtr., 60% during 2nd qtr., 85% during 3rd qtr. and 100% during 4th qtr.
/2 Includes 2 trailer laboratories, 6 monitoring stations and furniture for 23 additional personnel @ approximately $10,000.
/3 Office at Bismark to open Fiscal Year 1967
/4 Increase of 5 in number of personnel to allow for staffing the Bismark station.
/5 Temporary personnel to be paid from Contracts funds.
/6 Increase of only $17,000 from $733,000 allocation, by a reduction of $45,000 in original estimate of Contracts needs.

WORKING BUDGET

Request for Funds, Fiscal Year 1967 (Revised January 1966)

Region VI, Kansas City, Mo. Program/Project No. 207/646 Title: MOSORED

1966 Allowance No. 6-3116		1966 Allowed	1967 Request	Increase or Decrease
Item	Title			
11	Personnel Compensation (total)	$ 85,596	$286,021	$200,425
	Temporary Personnel	2,700		2,700
12	Personnel benefits	8,782	26,219	17,437
21	Travel			
	Change of station including dependents & dislocation allowance	500	2,000	1,500
	Other travel	7,689	19,000	11,311
22	Transportation of things			
	Change of station	1,600	8,000	6,400
	Other	211	1,000	789
23	Rents, communications & utilities (including space rental)	1,397	6,800	5,403
24	Printing and reproduction	3,539	6,000	2,461
25	Other services			
	Contracts	99,815	175,000	75,185
	Other	502	1,000	498
26	Supplies and materials	4,245	11,132	6,887
31	Equipment	17,165	207,828	190,663
	TOTAL	$233,741	$750,000	$516,259

WORKING BUDGET
Request for Funds, Fiscal Year 1967 (Revised January 1966)

Region VI, Kansas City, Mo. Program/Project No. 207/646 Title: MOSORED

Explanation of Justification for Increase

1. Up-staffing of personnel from 14 to 40, plus 10 temporary.

2. Contracts:

Management Study	50,000
U.S.G.S.	15,000
U. S. Fish & Wildlife Service	30,000
B. O. R.	25,000
Univ. of Kansas or others	25,000
Data processing & Misc.	15,000
Temporary personnel (10x4x350)	15,000

3. Equipment:

Trailer Labs (2 @ 30,000)	60,000
Monitoring Stations (6 @ 15,000)	90,000
Laboratory & Work Area	30,000
Laboratory equipment	17,828
Furniture for 23 personnel	10,000

4. Rental of space at Bismark, N. D. 5,000

NARRATIVE BUDGET JUSTIFICATION FOR FISCAL YEAR 1968:

The objective of the MOSORED River Basins Comprehensive Water Pollution Control Project is to cooperatively develop and implement an effective comprehensive water quality and pollution control program considering all Federal, State, Interstate and private interests in the Missouri-Souris and Red Rivers of the North Basins, thereby assuring a supply of clean water available for all legitimate uses of present and future populations of the study area.

A dynamic comprehensive program will be accomplished by consultation and cooperation with officials and leaders in the project area. The economic studies and projections for a fifty-year period to determine the probable and desirable legitimate uses of the stream and other water resources of the basin. The goal is the implementation of an effective program by cooperative efforts of local, State and Federal agencies. The development of the comprehensive program will require specific investigations where adequate data are not available. Studies of existing water supplies and waste treatment facilities, economic and population data, stream dynamics, water use, waste load relationships will be undertaken in cooperation with local, State, Interstate and other Federal agencies that are in responsibility for water pollution and water resources developments.

Studies will be coordinated with the activities of the International Joint Commission's work in the Red River of the North area and with activities in the Missouri Basin Inter-Agency Committee and its Standing Committee for Comprehensive Basin Planning in the Missouri Basin.

The following specific activities are planned:

Inventories - Inventories of existing water facilities will be made to provide data on the present use of surface and ground water for domestic, municipal, industrial, agricultural water supplies; navigation, irrigation, and other purposes. These inventories will contain information on uses, amount of water used, location of withdrawal, water supply systems, and treatment facilities.

Water pollution inventories will provide necessary information on all sources of pollution such as location, kind, amount, and characteristics of the wastes. Sources of pollution will include combined sewer overflows, surface runoff, municipal and industrial sewer system outfalls, waste treatment facilities, and agricultural waste waters.

Economic and Population Studies - The Economic Unit will conduct studies on the concepts of economic efficiency of water quality management. A program assuring satisfactory water quality will be based essentially on economic justification.

The Economic-Engineering team conducting cost analysis of alternative pollution abatement systems will determine the most efficient system for solving the water quality problem.

Economic projections, based on data provided by

the Office of Business Economics of the Department of Commerce will be made for the entire River Basin. These projections will provide a basis for an input-output study, which will forecast future industrial development, including projected size of plants, distribution of labor force and job opportunities.

Estimates of future water use and needs and types and amounts of resulting wastes of municipal growth and industrial activities will be developed for the basin.

Stream Dynamics - These studies will include detailed measurements of the present physical, chemical, and biological qualities of water of the area. Past records will be evaluated and detailed measurements made to determine the amounts, distribution and seasonal variation in quality. A computerized storage and retrieval system will be employed to make these data readily available for any given area. Hydrologic studies will be made to measure the velocity, depth, turbulence, stratification, effects of impoundments, regulating devices and other physical characteristics of the waterways.

Interpretations of these data will show cause and extent of water quality deterioration; effect of various hydraulic features on water quality and indicate where protective measures are needed to maintain suitable water quality. The implementation of a Comprehensive

Water Pollution Control Program will minimize the various pollutional problems as well as provide a basis for future development.

Comprehensive Management Program

Knowledge obtained from these complex interrelated studies will give a picture of the present and past conditions of the water resources system. Estimates of future water requirements and waste discharges, based on economic and demographic studies, runoff, hydrologic features, and other data will provide a base from which remedial and protective measures required to achieve the desired objective of managing the water quality of the basin can be determined. These data will be used in the development and application of mathematical analyses or models that will provide:

1. information relative to those factors which affect water quality for different development conditions, existing at predetermined times in a given area.
2. information relative to the effectiveness of alternative investments, permitting the selection of the least cost combinations of alternatives, which will accomplish a specific pollution control (i.e., water quality) condition.

Guidelines relating to water resource development projects, beneficial water use, treatment technology, and planning constraints will be established to assure optimum water pollution control and quality management. The Comprehensive program will be based on the projection of future conditions. The completed plan will be flexible

in order to allow future generations the greatest choice of alternatives in the conservation, development and use of the water and related land resources.

In Fiscal Year 1968, a water quality laboratory will be established at Headquarters in Kansas City, Missouri. A second Program Office will be established to direct work in the upper reaches of the river basins. The overall problems to be resolved through careful examination of present physical makeup of the waterways, together with the forecast as to the possible changes, is that of providing water quality which will meet local use requirements in such a manner as to permit a continued high level of public health, economic, recreational opportunities within the Missouri-Souris-Rainy and Red Rivers of the North Basins.

WORKING BUDGET SUMMARY

Date January 1966

Water Supply and Pollution Control
Working Budget
1968

Activity Comprehensive

Program or
Project MOSORED Basin Comp. Prj.

Headquarters Location Kansas City, Missouri

	1st. Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	Total	
Pers. Comp & Benefits	$106,105	$113,345	$120,586	$124,930	$464,966	1/
Travel	14,000	10,000	18,000	18,000	60,000	
Equipment	7,000	14,000	21,000	28,000	70,000	
Rental of Space	23,750	23,750	23,750	23,750	95,000	4/
Contracts	17,000	22,000	22,000	26,000	87,000	
Other	5,750	5,750	5,750	5,784	23,034	2/
Total	$173,605	$188,845	$211,086	$226,464	$800,000	

Allocation of Authorized Permanent Positions:	Project Headqtrs.	Bismarck Prog. Office	Billings Prog. Office	Total
	49	5	5	59
(Temporary) 3/	(10)	(0)	(0)	(10)
				69

1/ Increase in amount for personnel due to staff Bismarck in FY 67.
2/ Includes furniture for 19 additional staff @ approx. $10,000 plus $2,750 for telephones.
3/ Temporary personnel to be paid from Contracts funds.
4/ Includes rental of 17,750 sq. feet, for Kansas City office plus 1000 sq. feet each for the 2 program offices.

EXTRA PROJECT ASSISTANCE REQUESTED:

We would like assistance from TA&I Section to do a field study on the Lower Kansas River in the latter part of March or the first of April. This would consist primarily of oxygen profiles, time of passage studies, BOD's and other pertinent data for the varification of the model which is under contract with the University of Kansas.

It is also planned to contract for a summer study and conduct a study in the fall to obtain additional data for varification of the model.

Assistance from TA&I Section will be requested for consultation on purchase of program equipment and analysis of samples collected prior to the establishment of the program laboratory.

ITEMS OF CONCERN TO THE PROJECT NOT COVERED ABOVE:

Staffing of the project with capable personnel is the major item of concern.

Transfer of staff - The transfers of Mr. Reid to Indian Service, Mr. Witherow to Ada Laboratory and Mr. Wicks to the Basic Data Program reduced the staff to three professionals by the end of the second quarter of Fiscal Year 1966.

Mr. Holtrop, transferred from Construction Grants late in December 1965, is working on reimbursable flow regulation studies.

Mr. Dolginoff, Administrative Officer, reported for duty January 3, 1966.

Mrs. Kennedy, statistical clerk, will report February 13.

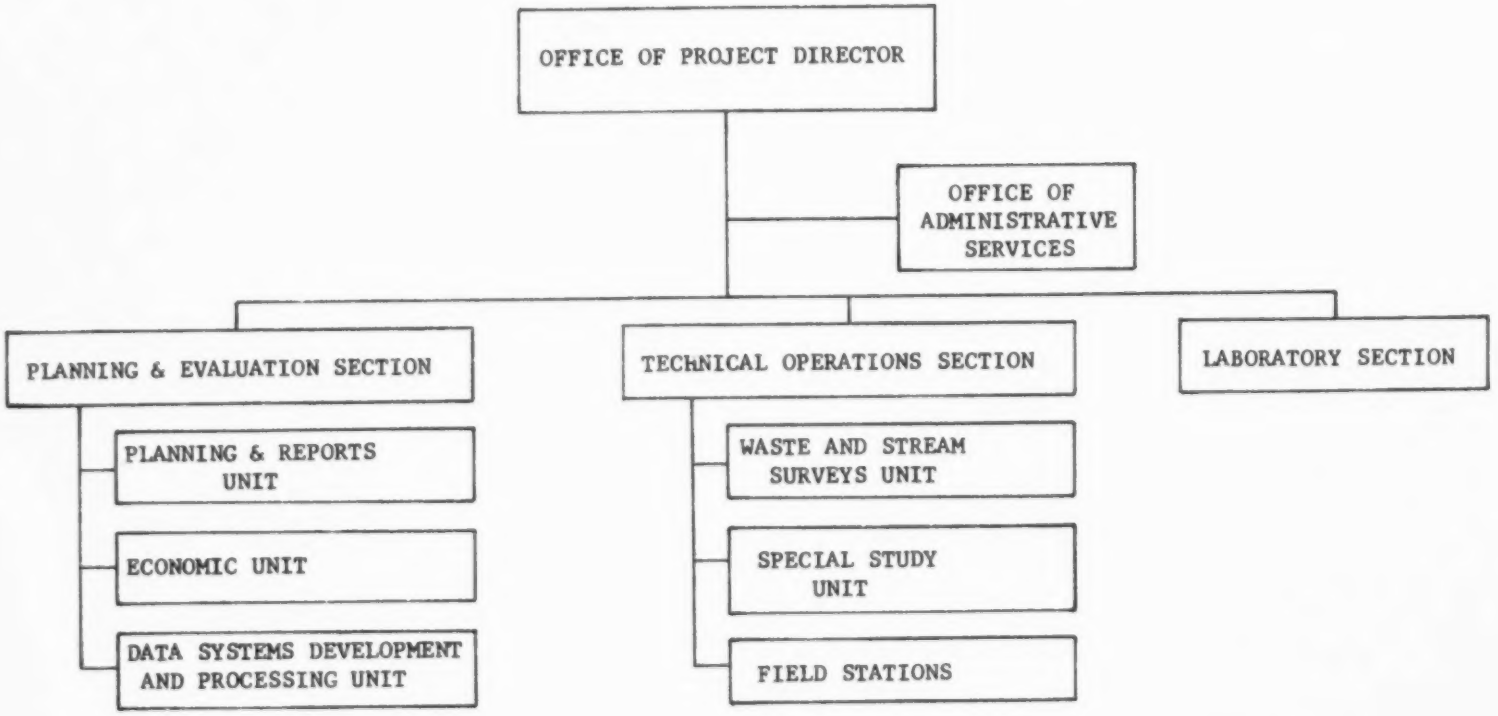
Recruiting for authorized positions has been unsuccessful to date.

Full staffing with capable personnel is essential to the full operation of the project. Present work load far exceeds the man power of present staff.

ORGANIZATION AND MANAGEMENT

MISSOURI-SOURIS-RED RIVER BASINS COMPREHENSIVE WATER POLLUTION CONTROL PROJECT

ORGANIZATIONAL CHART



Organization & Staffing
Exhibit I

EXHIBIT II - ORGANIZATION AND STAFFING

FUNCTIONAL STATEMENT

FOR

MISSOURI-SOURIS-RED RIVER BASINS

COMPREHENSIVE WATER POLLUTION CONTROL PROJECT

Missouri-Souris-Red River Basins Comprehensive Water Pollution Control Project

1. Evaluates all existing water supply and pollution control and related water resource information in the project area - Missouri, Souris and Red River of the North watersheds in North Central United States.

2. Develops new knowledge and projections of future conditions to supplement existing information in cooperation with Federal, State, Interstate, municipal and other public and private entities.

3. In accordance with Section 2 (A), Federal Water Pollution Control Act, as amended (33 U.S.C. 466 et seq), prepares a comprehensive water pollution control program for the project area, taking into consideration all legitimate water uses.

Office of the Project Director

1. Interprets Division policy in order to establish project objectives.

2. Formulates guidelines for the accomplishment of these objectives.

3. Directs and administers project activities.

4. Reports project accomplishments to higher authority.

5. Represents the project in relationships with cooperation public and private entities.

Office of Administrative Services

1. Interprets policy and establishes administrative procedures for the operation and management of the project.

2. Procures and manages space, equipment, supplies and services for the project.

3. Plans and manages the project's fiscal affairs.

4. Provides the project with personnel management.

Planning and Evaluation Section

1. Plans project activities to accomplish objectives established by the Office of the Project Director.

2. Coordinates activities of the various organizational components of the project on a continuous basis.

3. Evaluates project activities and reports on accomplishments.

4. Develops and utilizes system analyses.

Planning and Reports Unit

1. Designs work plans and schedules to insure coordination of laboratory, engineering, and management capabilities.

2. Evaluates existing and project-developed information for purposes of program planning and reporting.

3. Develops reports on project activities and accomplishments.

Economic Unit

1. Evaluates existing population, demographic and industrial development data.

2. Projects population, demographic and industrial development.

3. Development of water quality benefit-cost techniques.

Data Systems and Processing Unit

1. Develops and utilizes appropriate information, processing, storage and retrieval systems for the project.

Operations Section

1. Provides all field engineering services to project.

2. Directs and coordinates operation of program (field) offices.

Stream and Waste Survey

1. Designs and implements field inventories, measurements and sampling programs.

2. Provides expertise in ground and surface water hydrology.

Special Studies Unit

1. Investigates pollutional effects of municipal, industrial, and agricultural waste loadings in selected geographic areas.

Program Offices

1. Maintain liason with agencies and other public and private entities interested in water quality studies in an assigned area.

2. Provide intelligence on ground and surface water hydrology.

3. Implement field inventory, measurements and sampling programs in an assigned area.

Laboratory Section

1. Provides laboratory support in chemistry, biology, microbiology and related sanitary sciences at a central facility.

2. Anlayzes samples, interprets, and reports the findings.

3. Develops appropriate laboratory procedures for accomplishment of project objectives.

STAFFING ROSTER
MISSOURI-SOURIS-RED RIVER BASINS
COMPREHENSIVE WATER POLLUTION CONTROL PROJECT

Filled Permanent Positions: 1965-0; 1966-14; 1967-35; 1968-59 (peak)
(1966-3 Reimbursable Positions--see below)

Unit and Position Title	Grade or Rank	Series	Position Number	Duty Station	Incumbent	Year of EOD
OFFICE OF PROJECT DIRECTOR						
Project Director (Supv San Eng)	GS-15	819	EH-65-418	Kansas City, Mo.	Young	1966
Deputy Project Director (Supv San Eng)	GS-14	819	EH-65-415	" "		1966
Secretary	GS- 6	318	330	" "	Collier	1966
OFFICE OF ADM SERVICES						
Administrative Officer	GS-11	341	EH-63-413	" "	(Dolginoff)	1966
Ass't. Administrative Officer	GS- 5	341		" "		1967
Clerk-Steno	GS- 4	312		" "		1967
PLANNING AND EVALUATION SECTION						
Chief, Planning & Evaluation (Supv San Eng)	GS-14	819		" "		1967
Secretary	GS- 5	318		" "		1967
Planning & Reports Unit						
Planning Engr (System Analysis)	GS-12	813		" "		1967
Cartographic Draftsman	GS- 5	816		" "		1967
Librarian	GS- 5	1410		" "		1968
Clerk-Steno	GS- 4	312		" "		1968
Economic Unit						
Chief Economist	GS-13	110	EH-63-226	" "	Hajinian	1966
Economist	GS- 9	110	EH-65-412	" "		1966
Clerk-Steno	GS- 4	312	331	" "	Amos	1966

STAFFING ROSTER
MISSOURI-SOURIS-RED RIVER BASINS
COMPREHENSIVE WATER POLLUTION CONTROL PROJECT

Unit and Position Title	Grade or Rank	Series	Position Number	Duty Station	Incumbent	Year of EOD
Data Systems Development & Processing Unit						
Data Systems Analyst	GS- 9	334		Kansas City, Mo.		1966
Statistical Clerk	GS- 5	1531	448	" "	(Kennedy)	1966
Statistical Clerk	GS- 3	1531		" "		1967
Clerk-Steno	GS- 3	312		" "		1967
TECHNICAL OPERATIONS SECTION						
Chief, Operations (Supv San Eng)	GS-14	819	EH-65-	" "		1966
Secretary	GS- 5	318		" "		1967
Stream and Waste Surveys Unit						
Hydrologist	GS-12 (HSO)	1315	7318	" "	Draper	1966
Staff Engr. (San)	GS-12	819		" "		1967
Field Engr.(San)	GS-11	819	EH-65-413	" "		1966
Biologist	GS-11	401		" "		1967
Engr. Technician	GS- 5	802		" "		1967
Engr. Technician	GS- 5	802		" "		1967
Engr. Technician	GS- 5	802		" "		1967
Aquatic Sample Collector	WB- 4	-		" "		1968
Aquatic Sample Collector	WB- 4	-		" "		1968
Aquatic Sample Collector	WB- 4	-		" "		1968
Aquatic Sample Collector	WB- 4	-		" "		1968
Aquatic Sample Collector	WB- 4	-		" "		1968
Aquatic Sample Collector	WB- 4	-		" "		1968
Special Studies Unit						
Chemical Engineer	GS-13	893	BSS 4771	" "		1966
Biologist	GS- 9	401	EH-65-414	" "	Powers	1966

STAFFING ROSTER
MISSOURI-SOURIS-RED RIVER BASINS
COMPREHENSIVE WATER POLLUTION CONTROL PROJECT

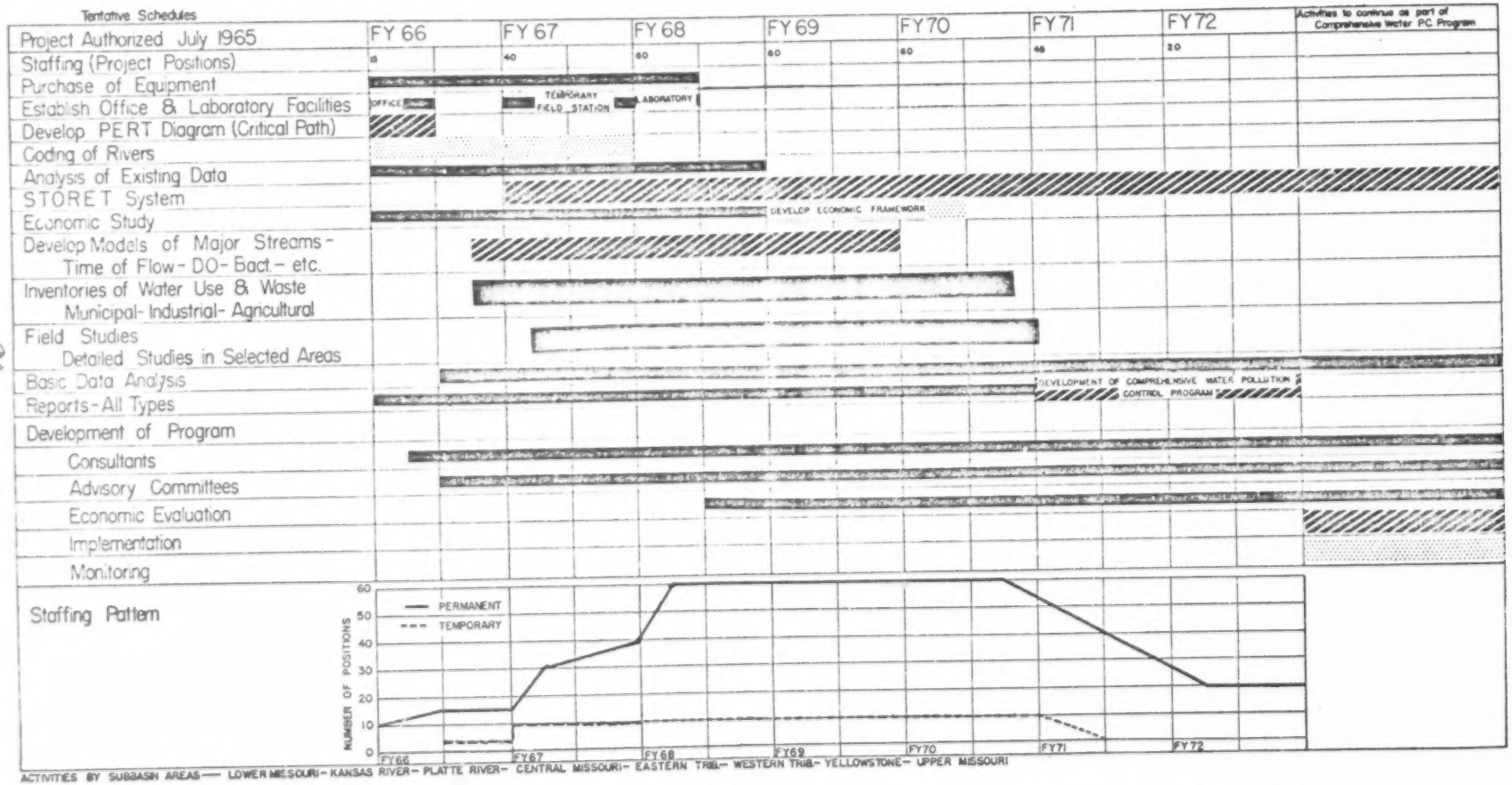
Unit and Position Title	Grade or Rank	Series	Position Number	Duty Station	Incumbent	Year of EOD
Bismarck Program Office						
Chief of Program Office (Supv San Eng)	GS-13	819		Bismarck, N.D.		1967
Chemist or Biologist	GS-11	1320 or 401		" "		1968
Engr. Technician	GS- 5	802		" "		1968
Engr. Technician	GS- 5	802		" "		1968
Secretary-Steno	GS- 4	318		" "		1968
Billings Program Office						
Chief of Program Office (Supv San Eng)	GS-13	819		Billings, Montana		1968
Chemist or Biologist	GS-11	1320 or 401		" "		1968
Engr. Technician	GS- 5	802		" "		1968
Engr. Technician	GS- 5	802		" "		1968
Secretary-Steno	GS- 4	318		" "		1968
LABORATORY SECTION						
Chief, Laboratory (Supv Chem)	GS-13	1320		Kansas City, Mo.		1967
Chemist	GS-11	1320		" "		1967
Microbiologist	GS-11	1320		" "		1968
Chemist	GS- 9	1320		" "		1968
Chemist	GS- 9	1320		" "		1968
Bacteriologist	GS-11	403		" "		1967
Physical Science Technician	GS- 7	1311		" "		1968
Physical Science Aide	GS- 4	1311		" "		1968
Laboratory Aide	GS- 3	1398		" "		1968
Clerk-Steno	GS- 3	312		" "		1968

STAFFING ROSTER
MISSOURI-SOURIS-RED RIVER BASINS
COMPREHENSIVE WATER POLLUTION CONTROL PROJECT

Unit and Position Title	Grade or Rank	Series	Position Number	Duty Station	Incumbent	Year of EOD
REIMBURSABLE POSITIONS*						
Field Engineer (San)	GS-12	819	EH-65-672	Kansas City, Mo.	(Holtrop)	1967
Hydraulic Engineer	GS-11 IV	1315	EH-65-671	" "		1967
Clerk-Steno	GS- 4	312	331	" "	Mikes	1967

* Reimbursable positions in FY 66 will be transferred to comprehensive project in FY 67.

MISSOURI-SOURIS-RED RIVER BASINS
COMPREHENSIVE WATER POLLUTION CONTROL PROJECT



ACTIVITIES BY SUBBASIN AREAS— LOWER MISSOURI- KANSAS RIVER- PLATTE RIVER- CENTRAL MISSOURI- EASTERN TRIB.- WESTERN TRIB.- YELLOWSTONE- UPPER MISSOURI

Kansas City, Missouri — 1966